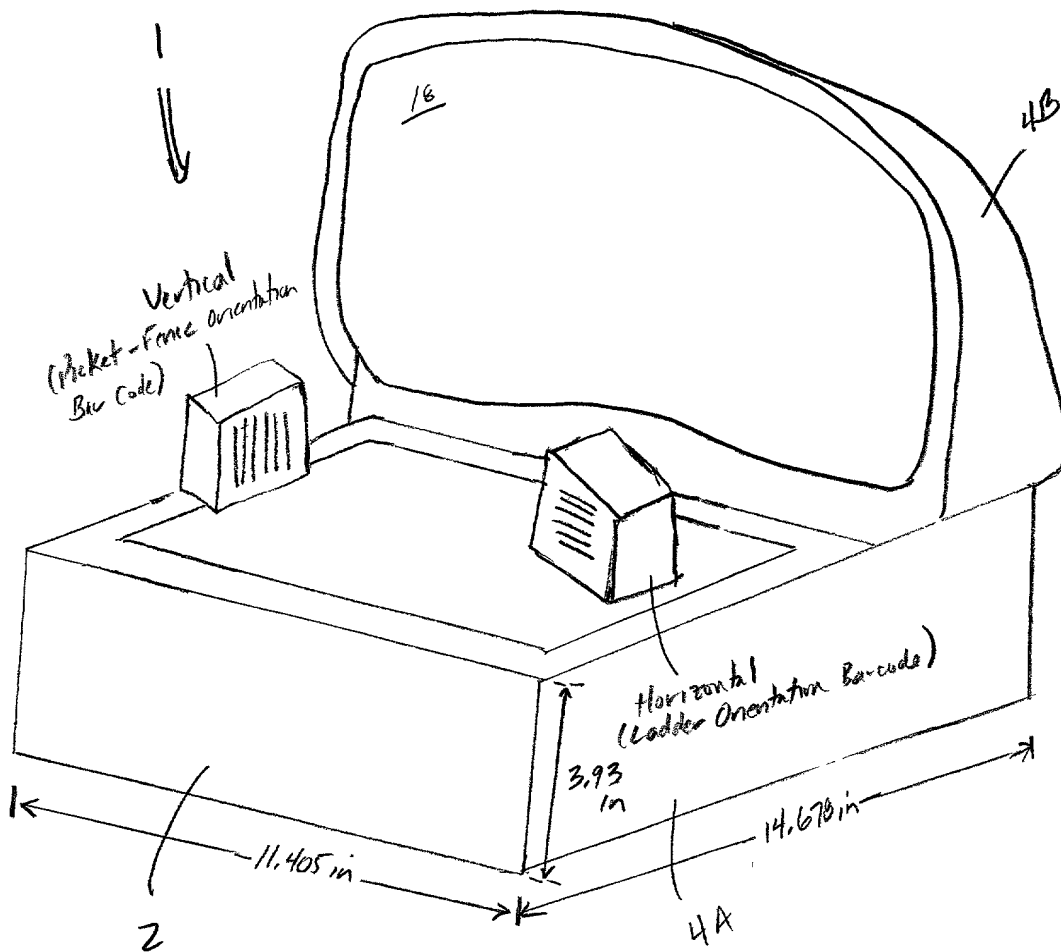


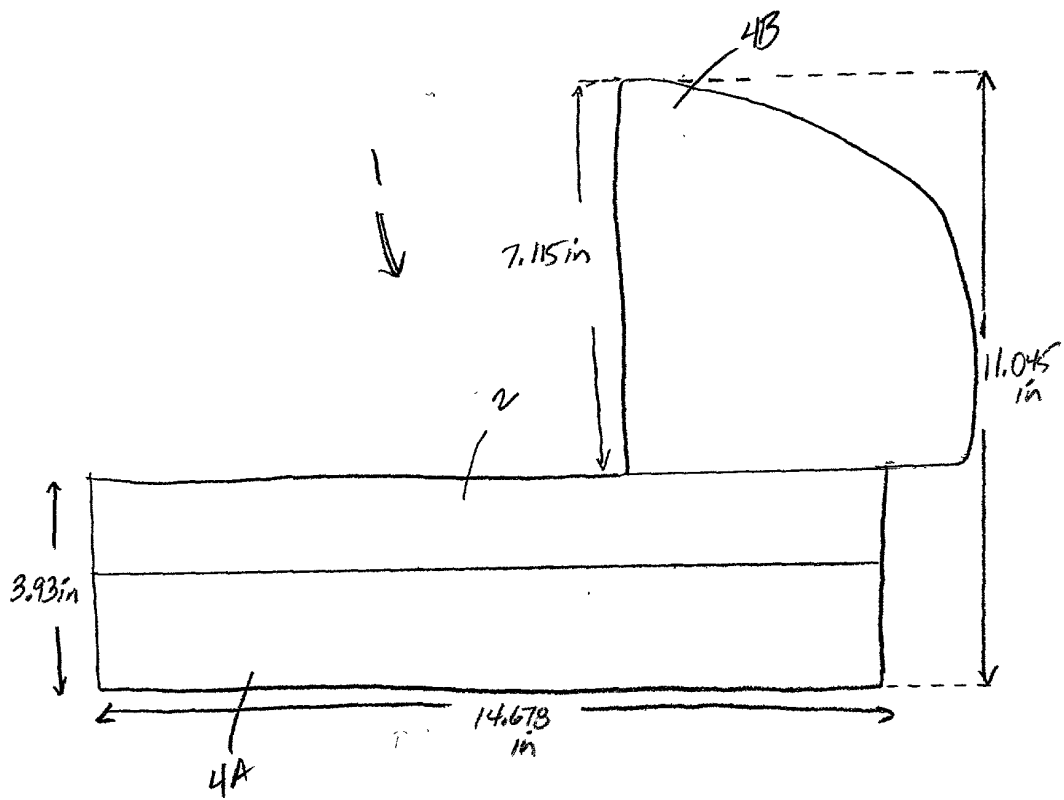
FIG 1A

FIG 1A



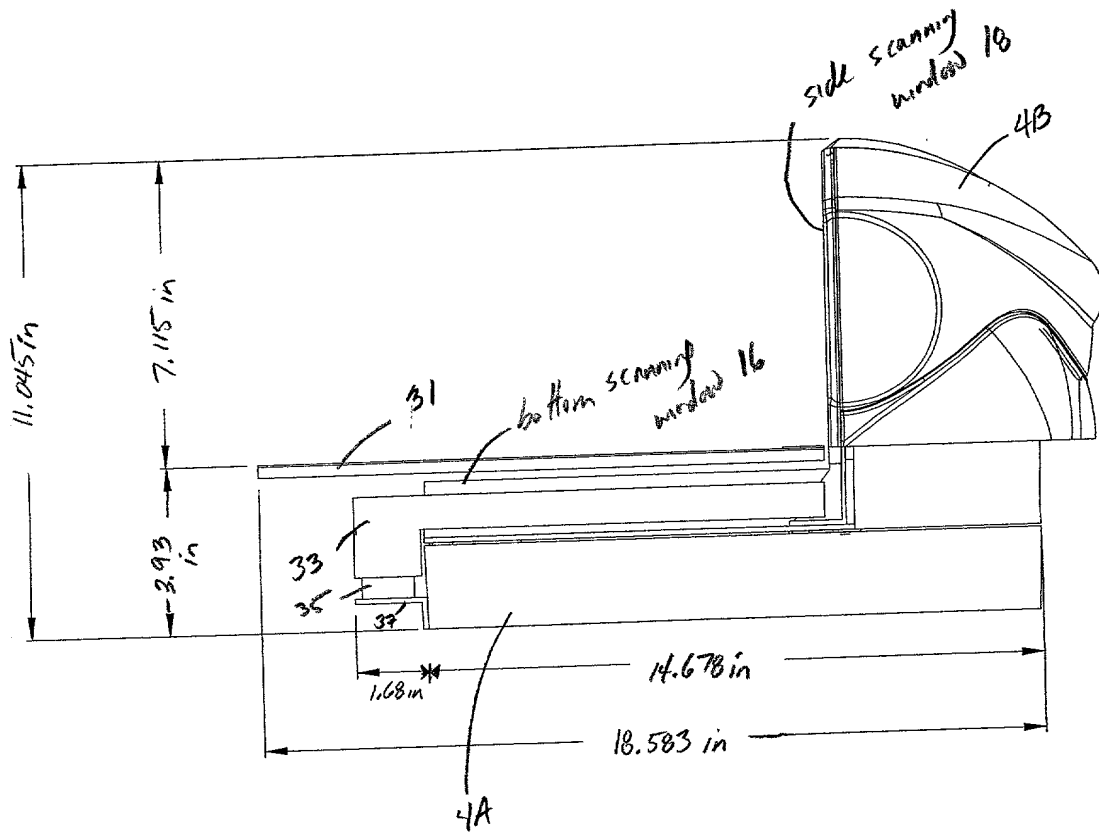
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FIG. 1B



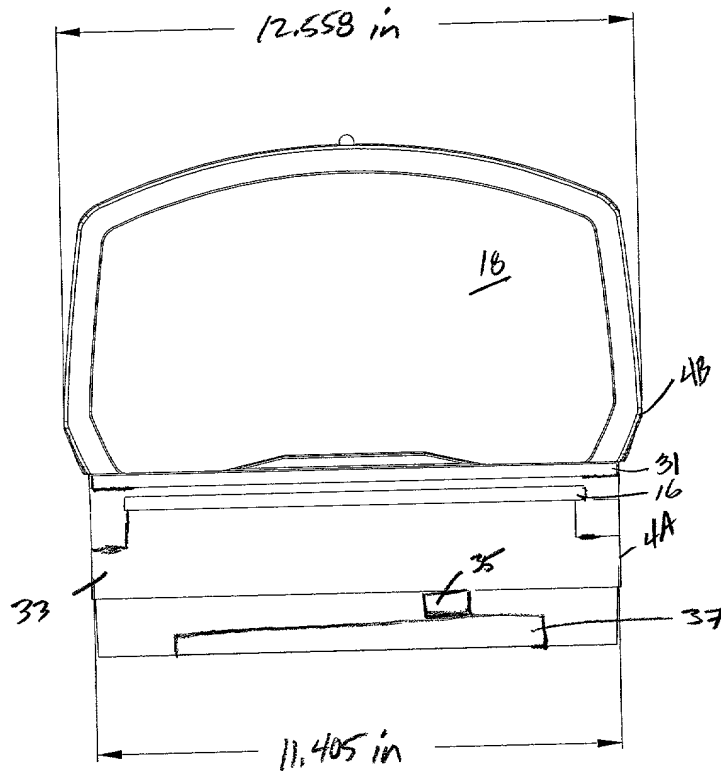
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FIG. 1C



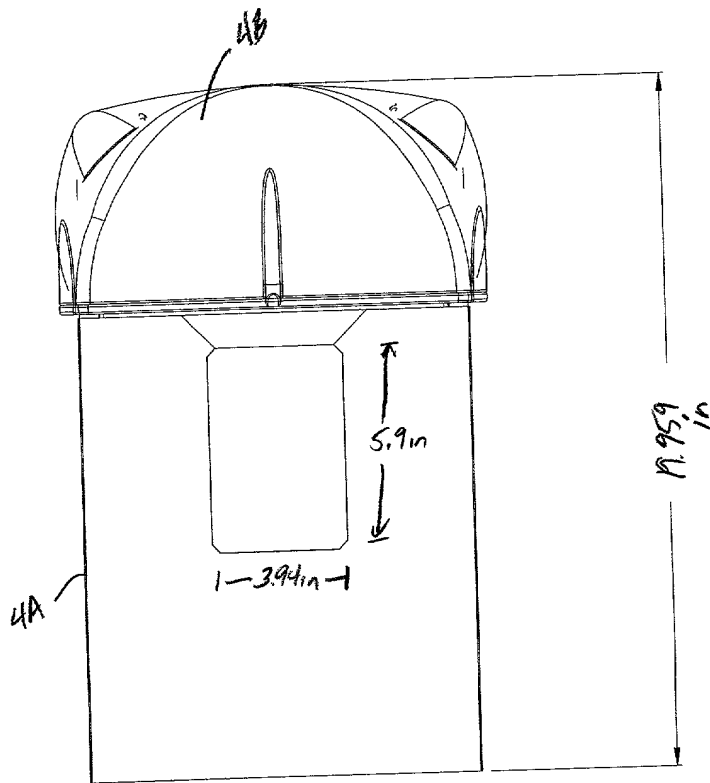
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FIG 1D



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FIG. 1E



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FIG. 1F

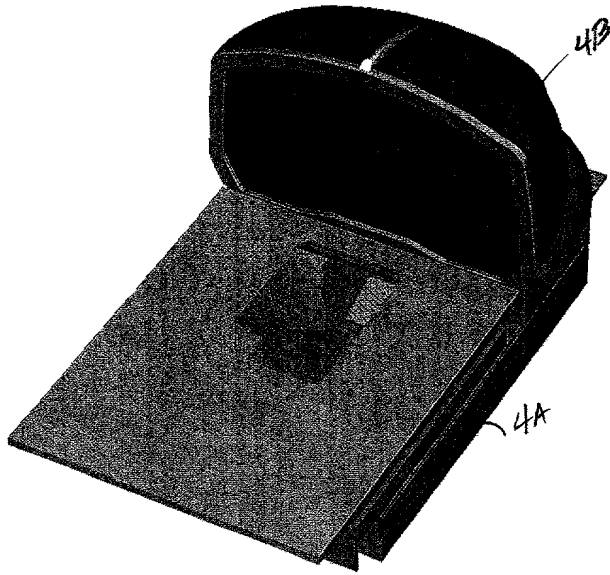
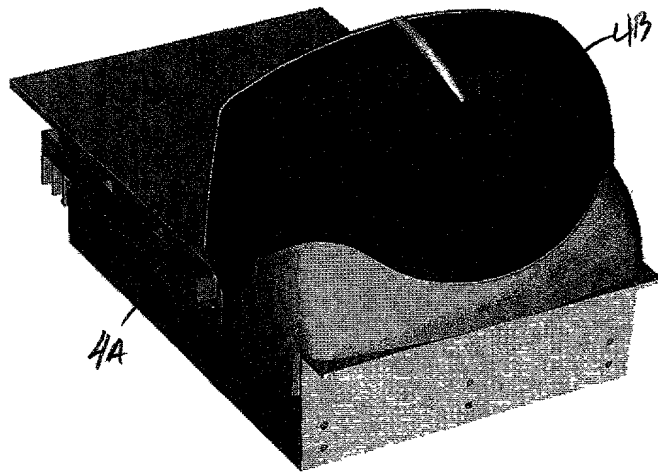


FIG. 1G



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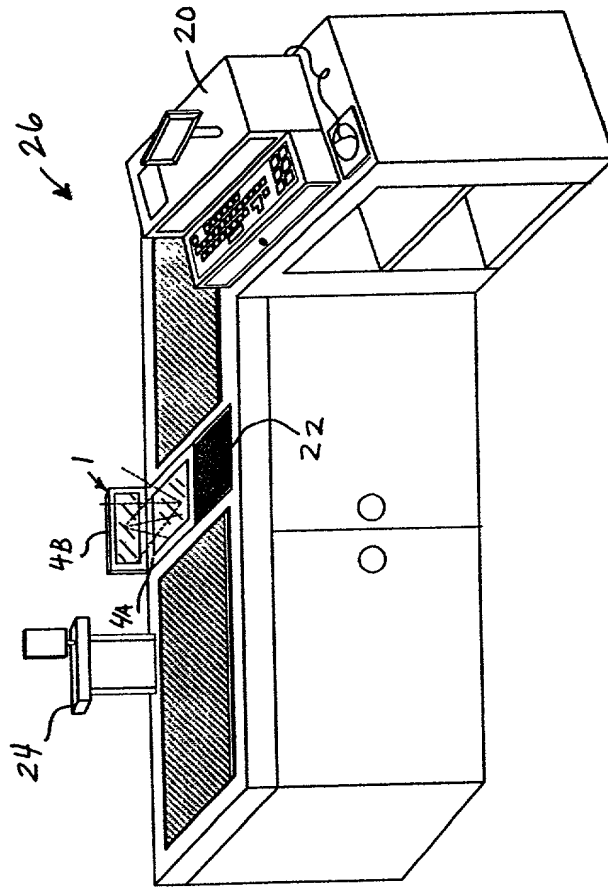


FIG. 14

FIG. 1 is a perspective view of a device 100 in accordance with the present invention. The device 100 includes a base 102, a display 104, a control panel 106, and a plurality of buttons 108. The display 104 is connected to the control panel 106 by a cable 110. The buttons 108 are arranged in a grid pattern on the control panel 106. The device 100 is shown in a perspective view from the front and slightly to the right.

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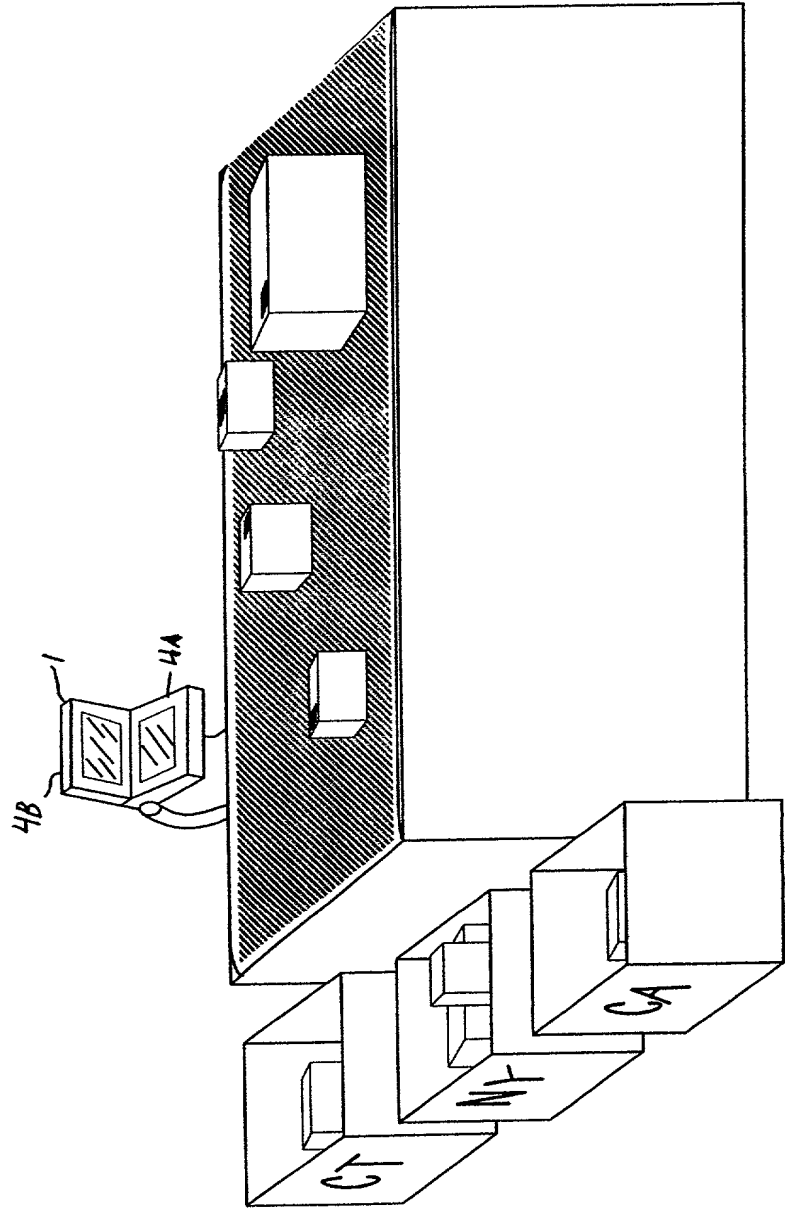
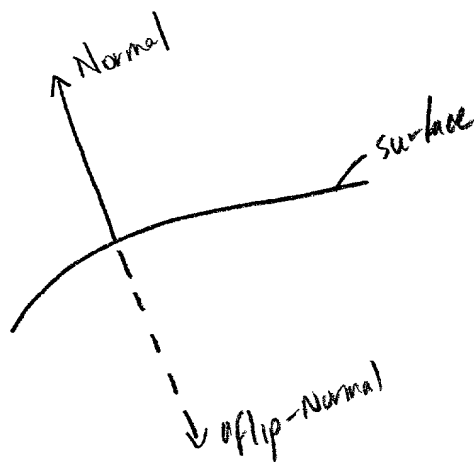


FIG. 1

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FIG. 1J



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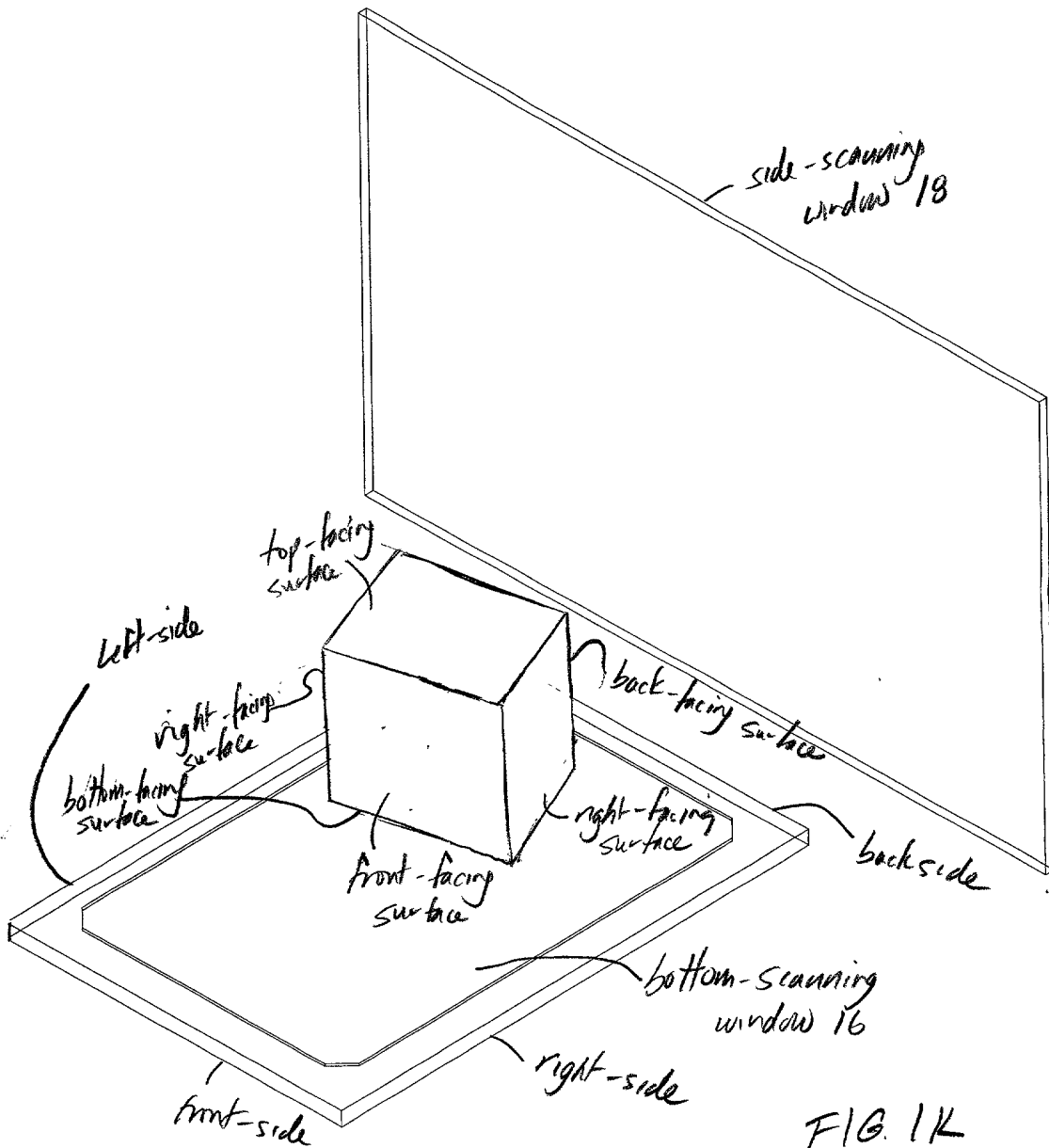


FIG. 1K

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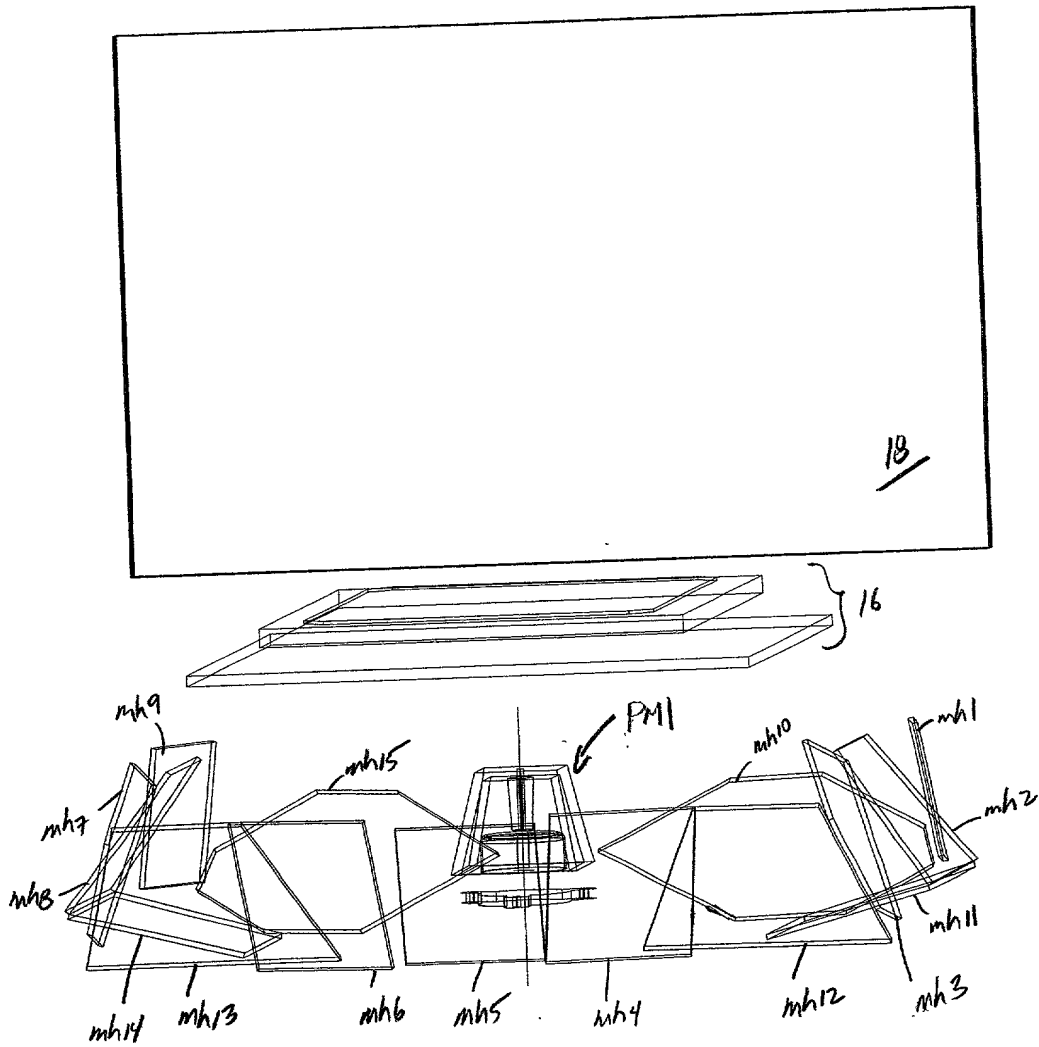


FIG 2A

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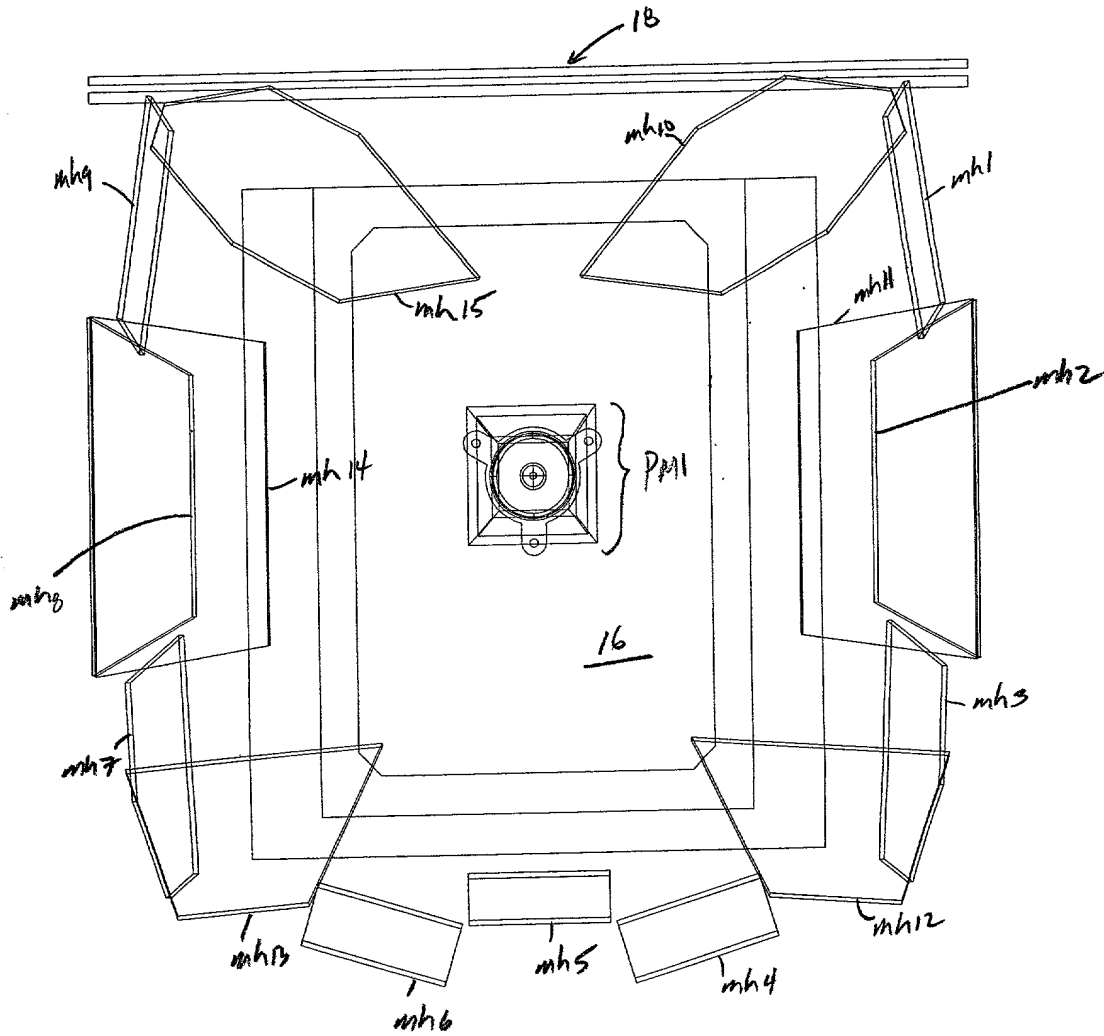


FIG. 2B

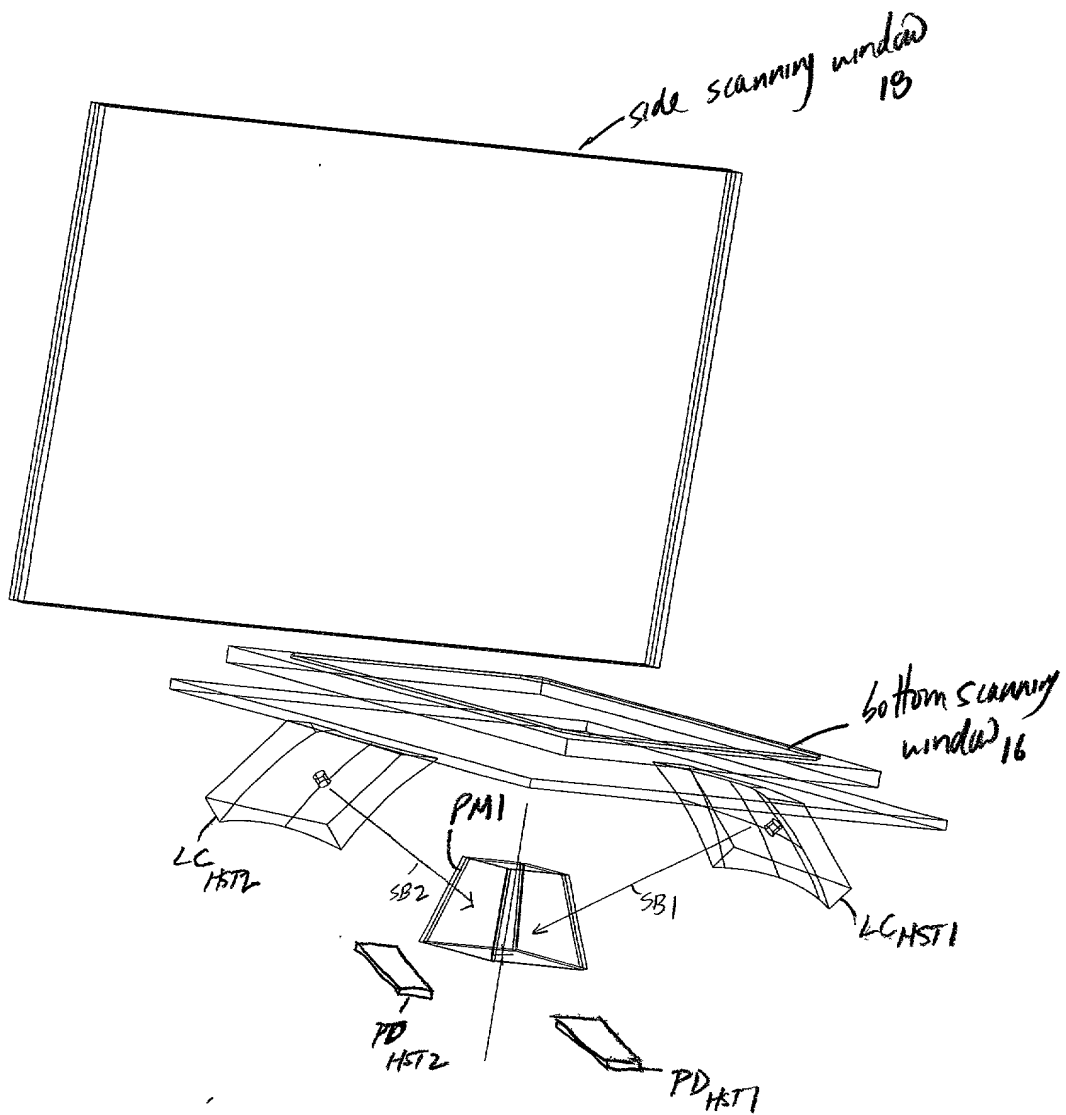


FIG. 2CT

H/00

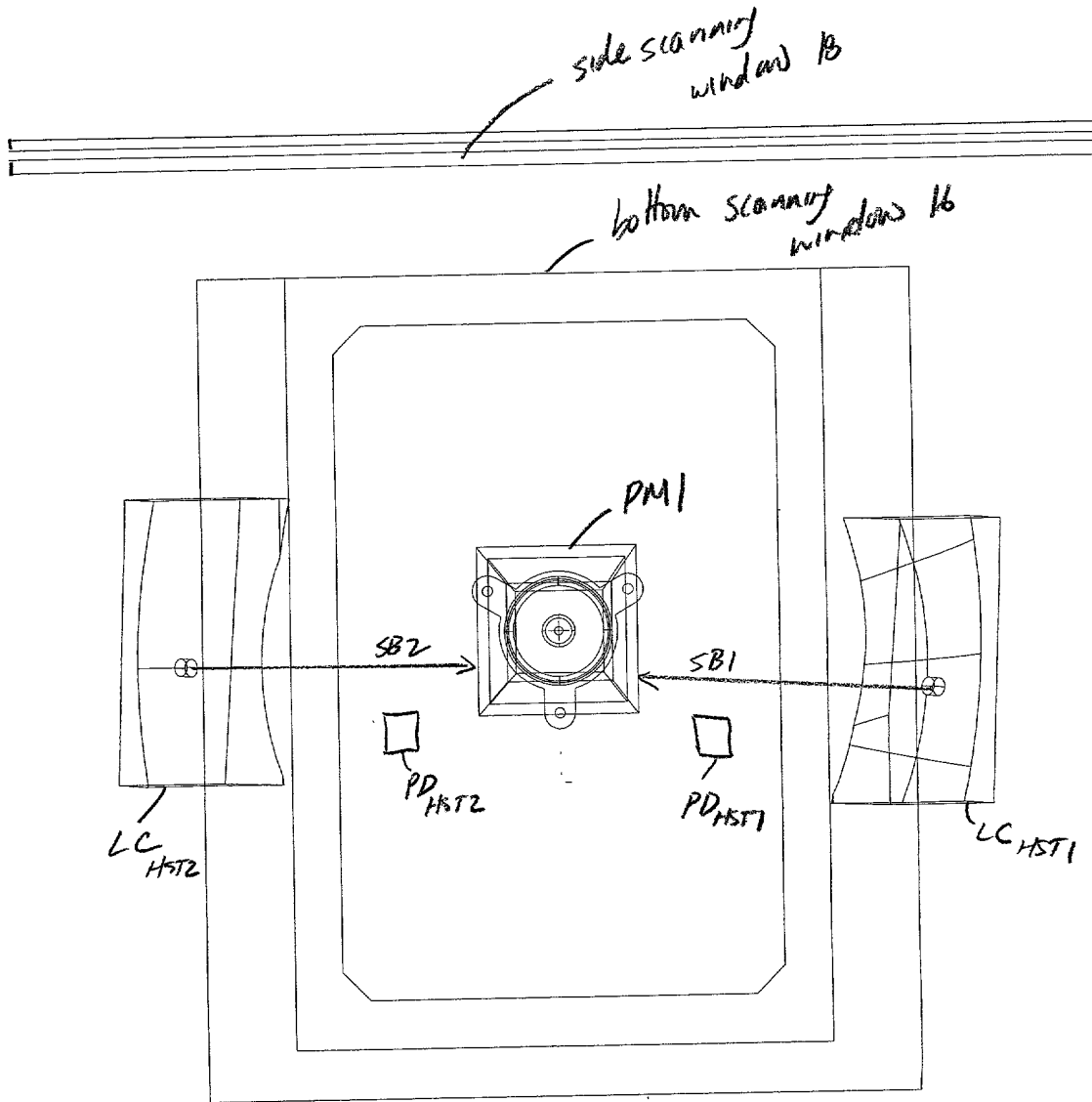


FIG. 2C2

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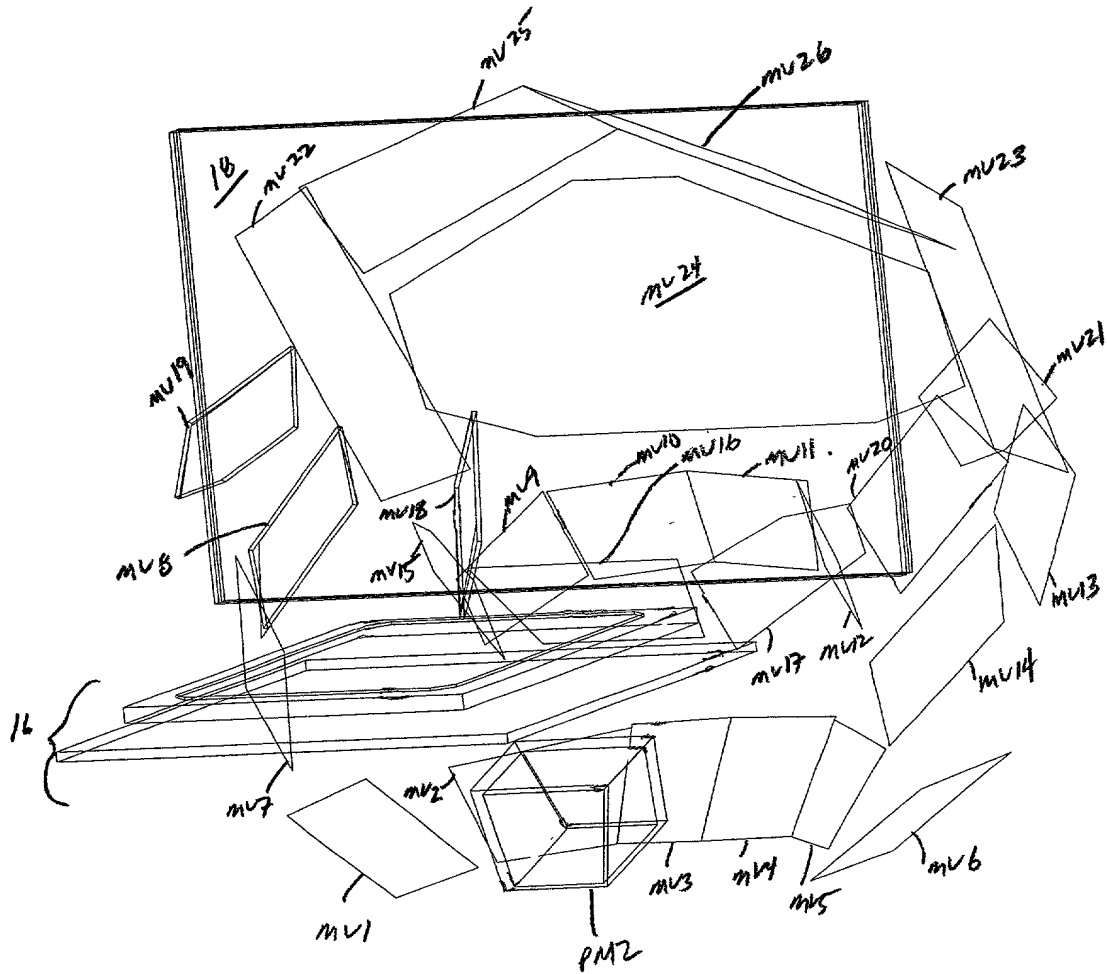


FIG 2D

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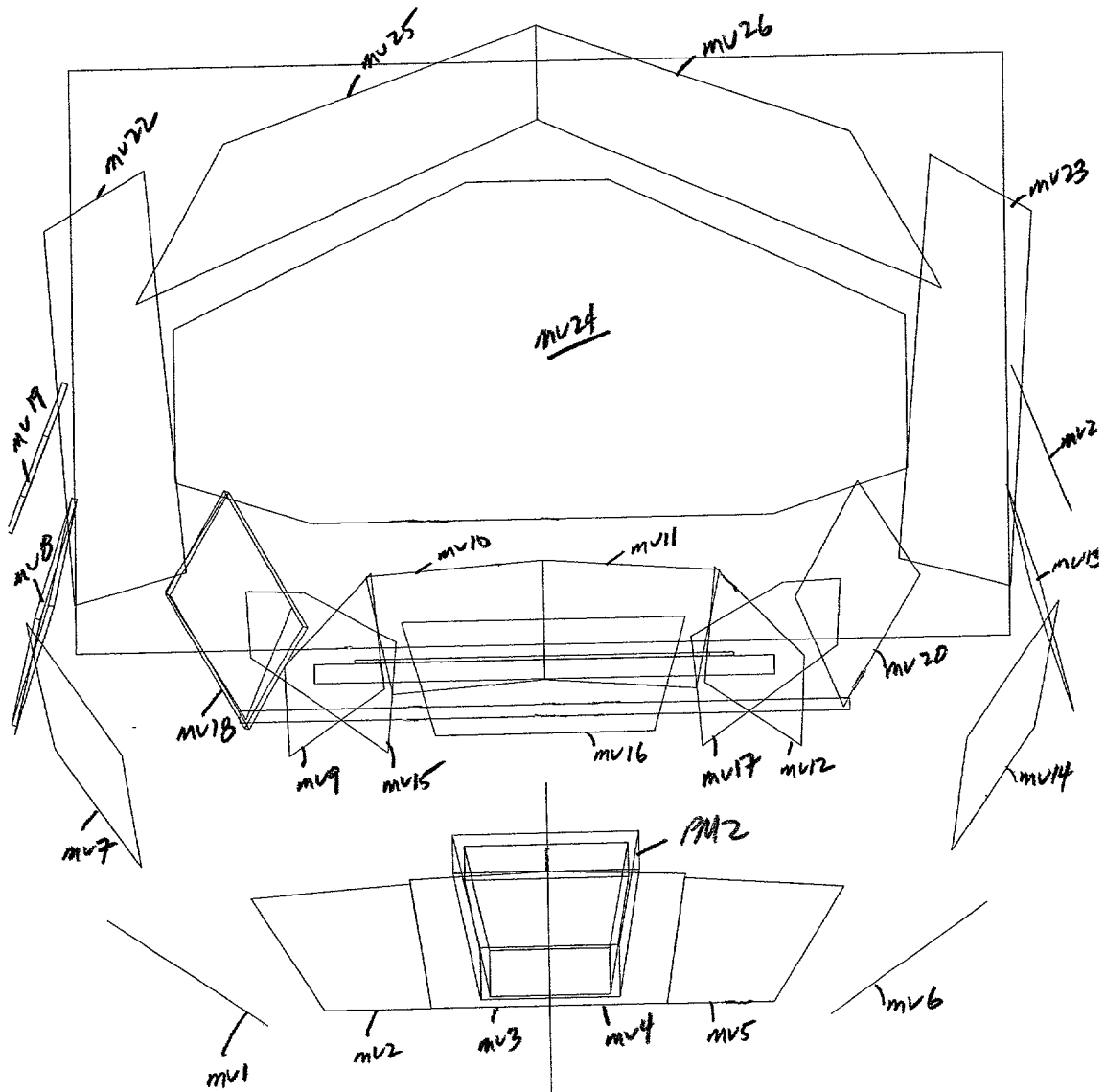


FIG. 2E

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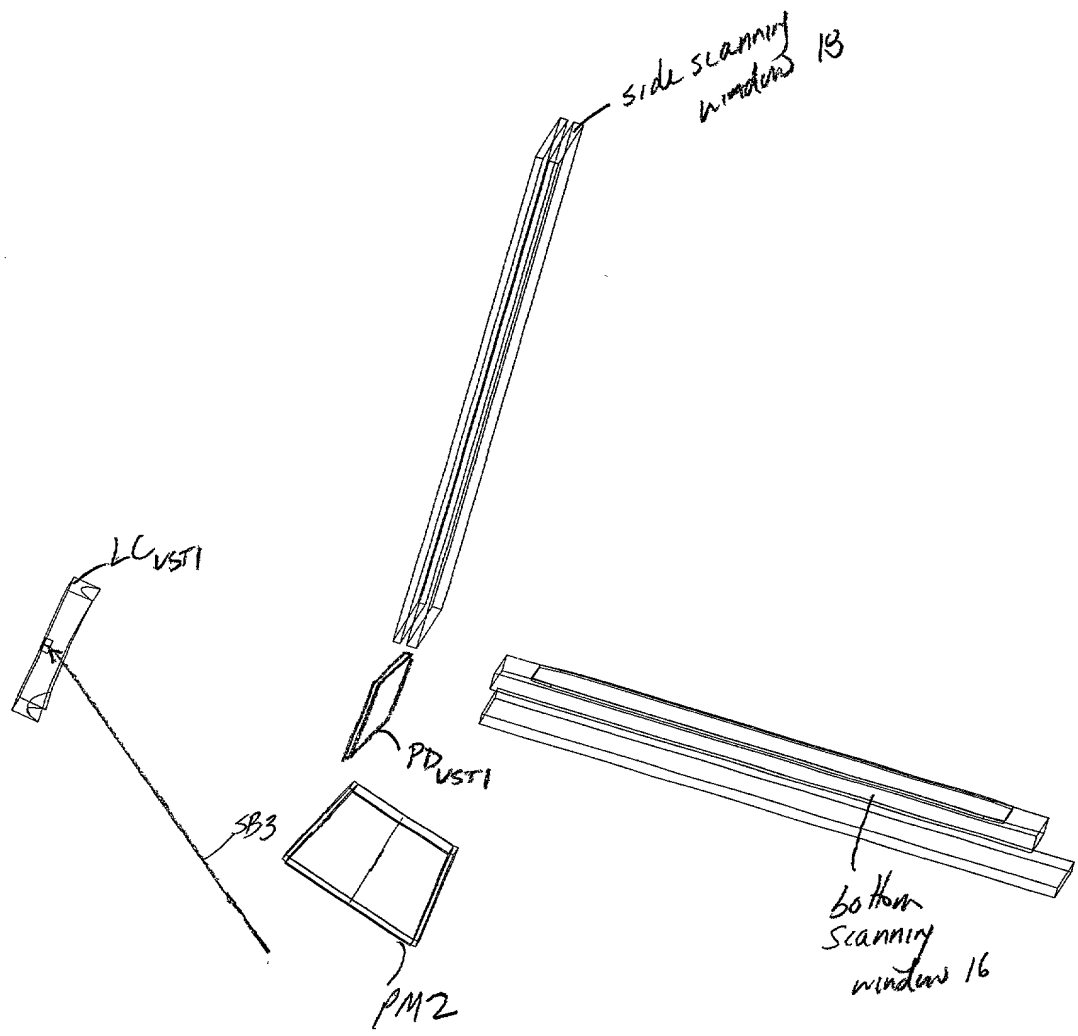
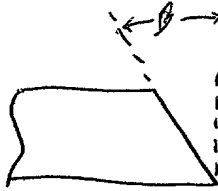


FIG. 2F

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First Polygon PM1

$$\beta_1 = 11.6^\circ$$

$$\beta_2 = 13.3^\circ$$

$$\beta_3 = 14.9^\circ$$

$$\beta_4 = 16.6^\circ$$

Second Polygon PM2

$$\beta_1 = 10^\circ$$

$$\beta_2 = 12^\circ$$

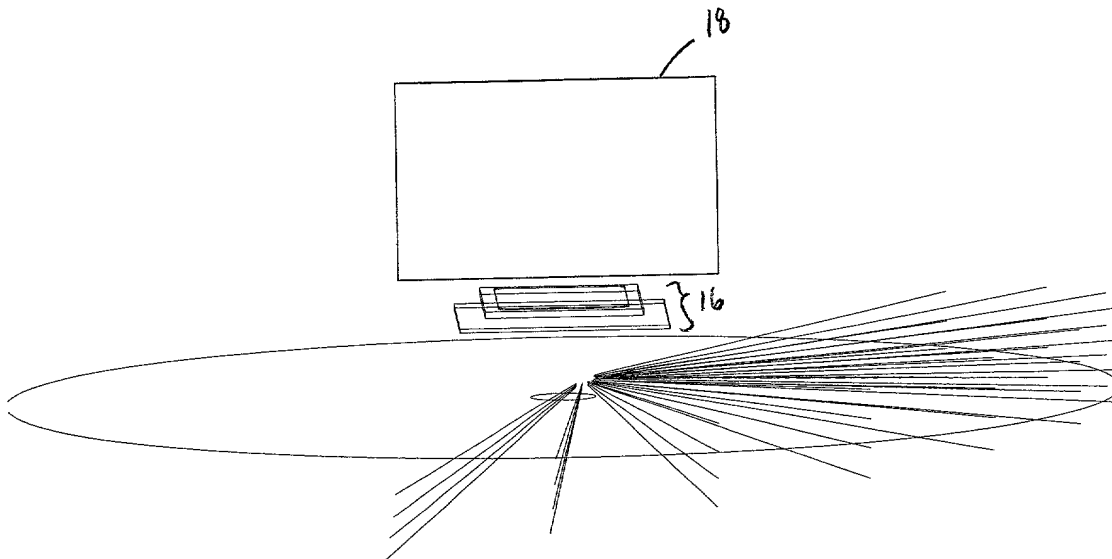
$$\beta_3 = -10^\circ$$

$$\beta_4 = -12^\circ$$

FIG. 261

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FIG. 262



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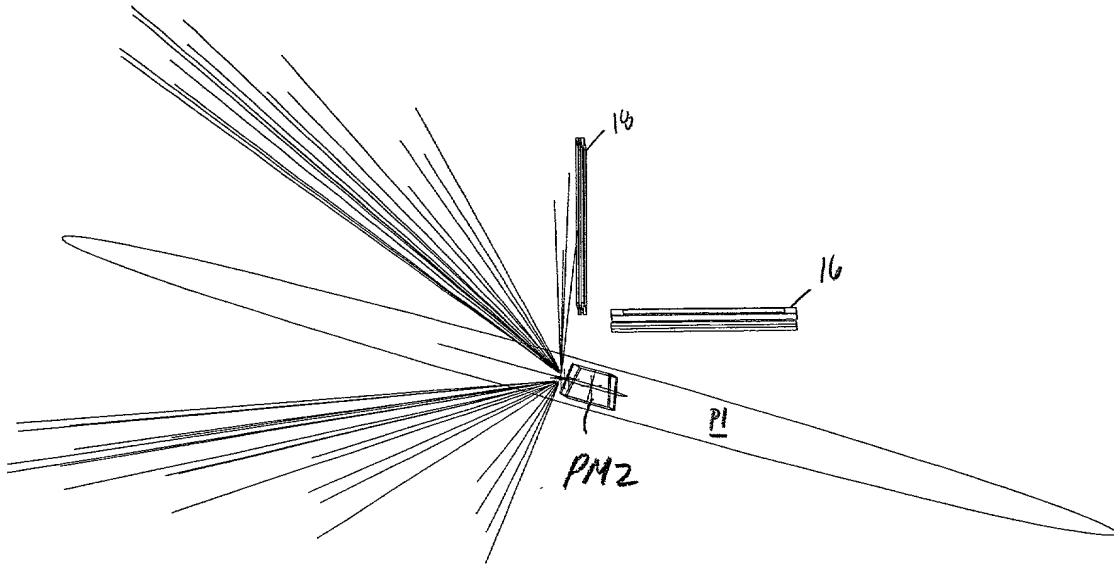


FIG. 263

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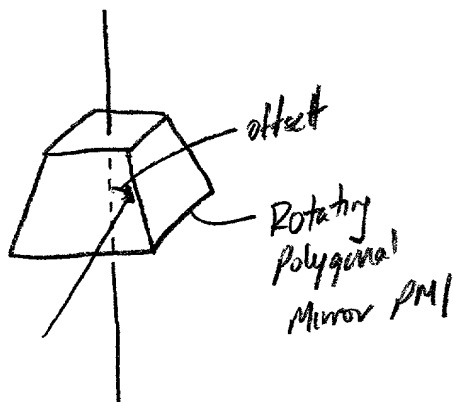
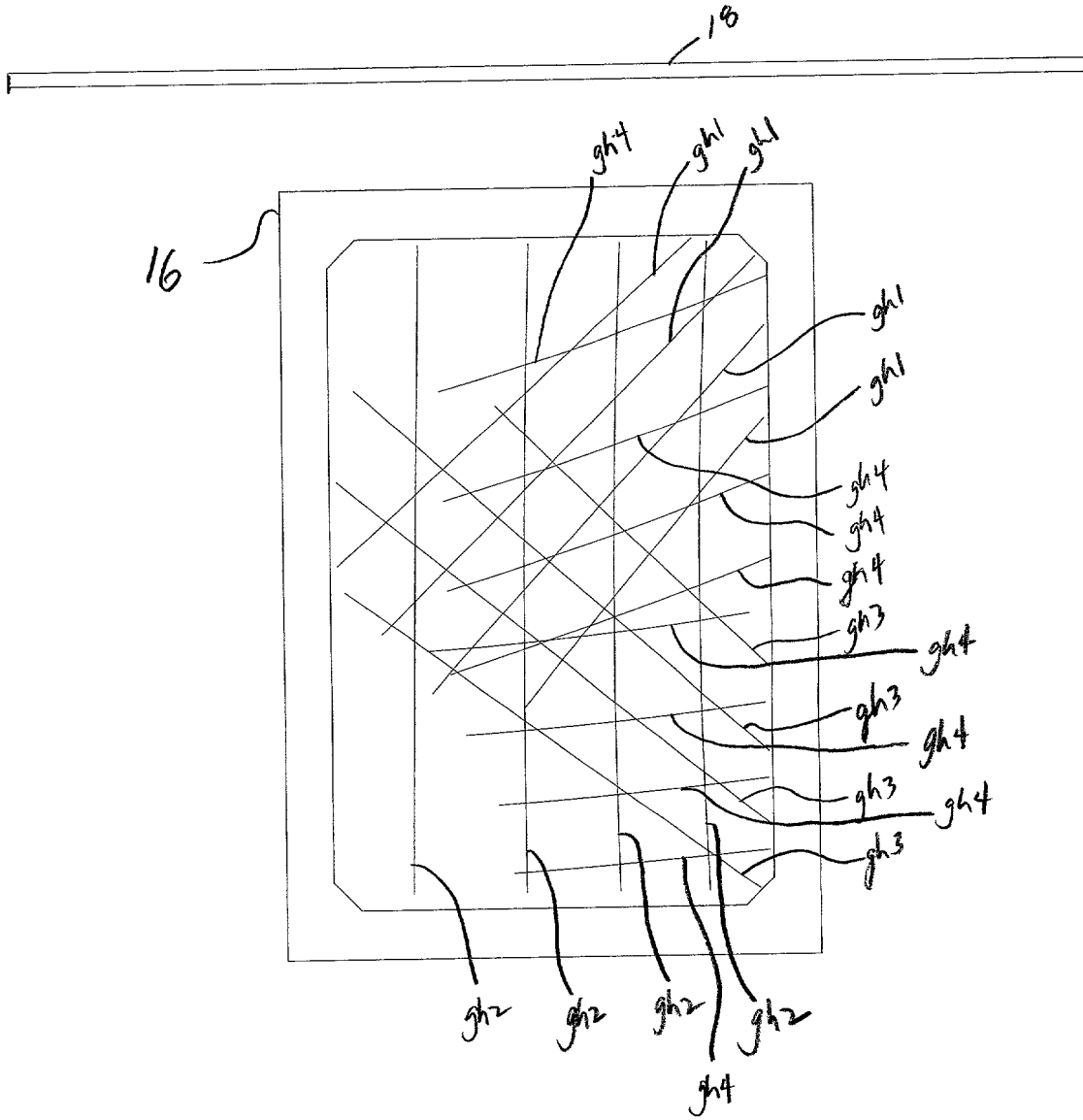


FIG. 2H

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FIG. 3A



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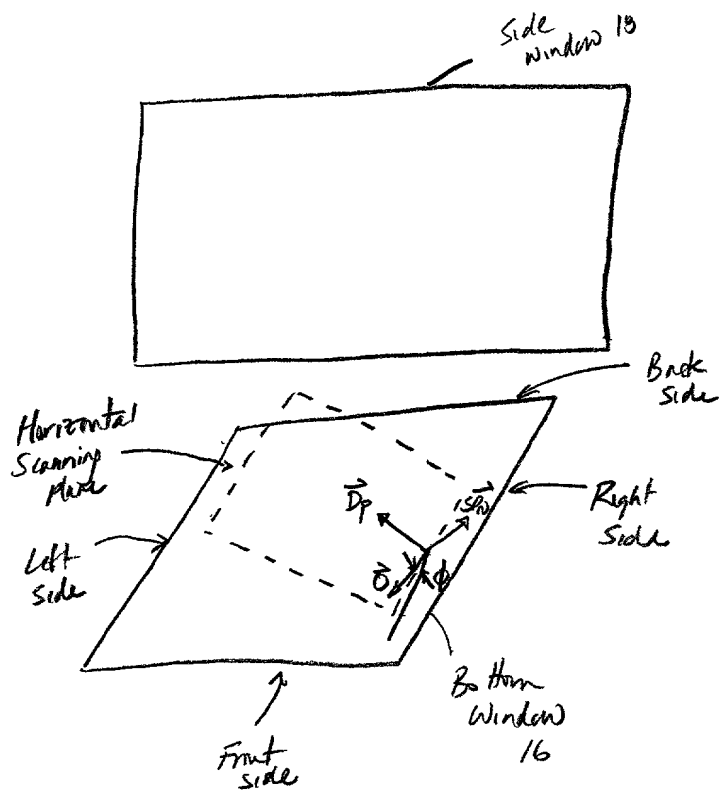


Fig. 3B1

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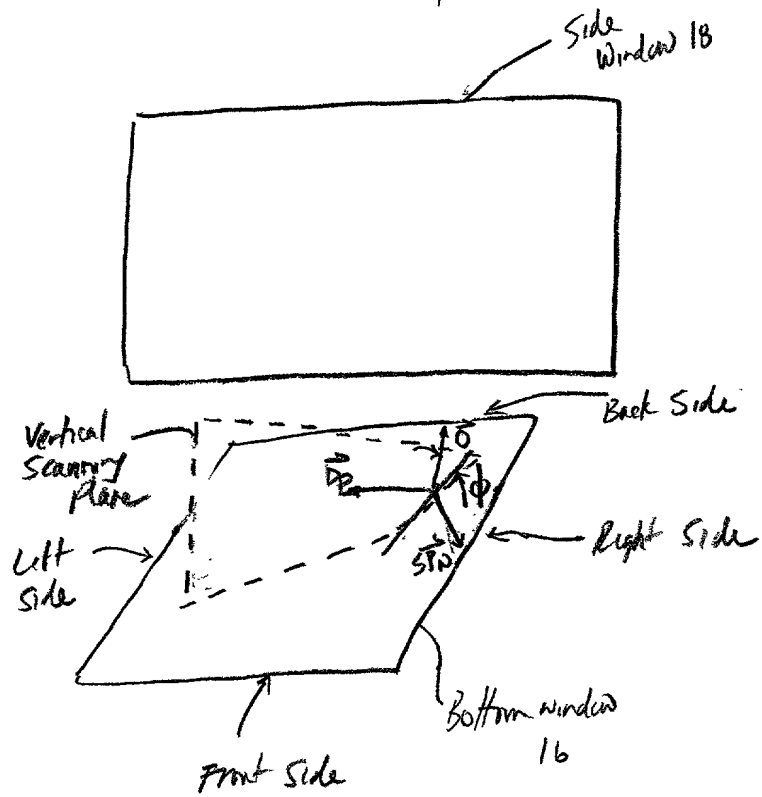


FIG. 3B2

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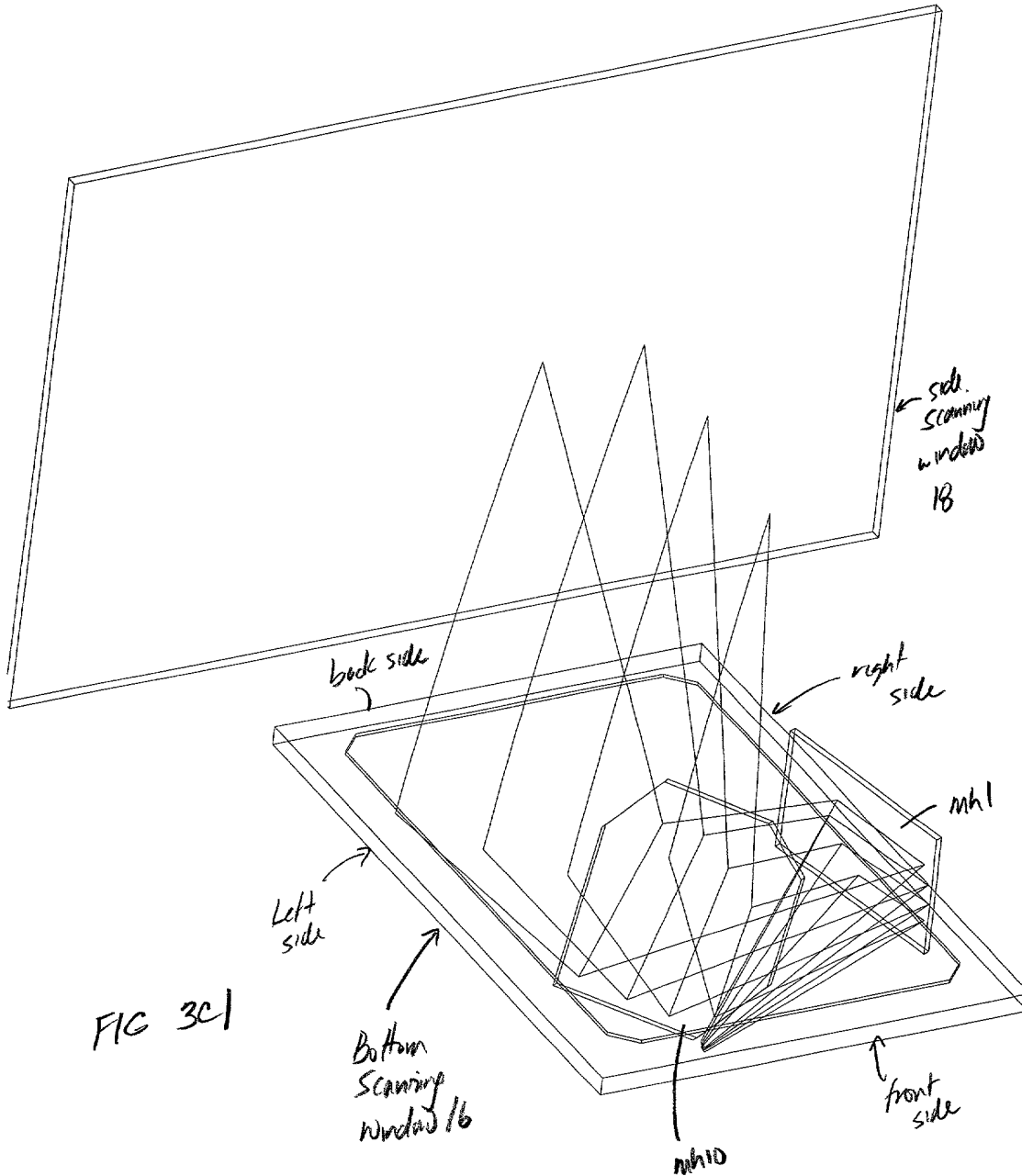
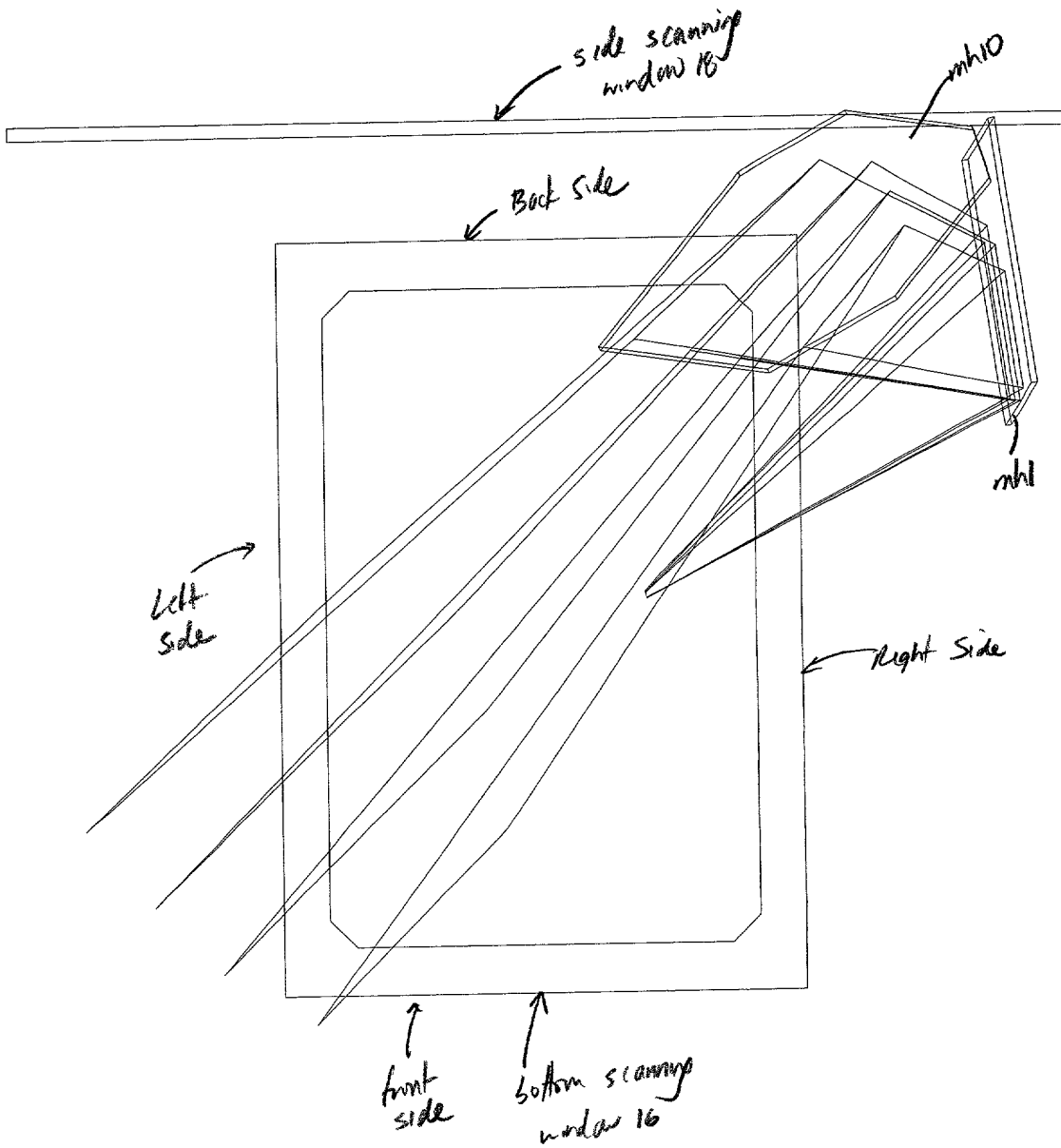


FIG 3C1

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FIG. 3C2



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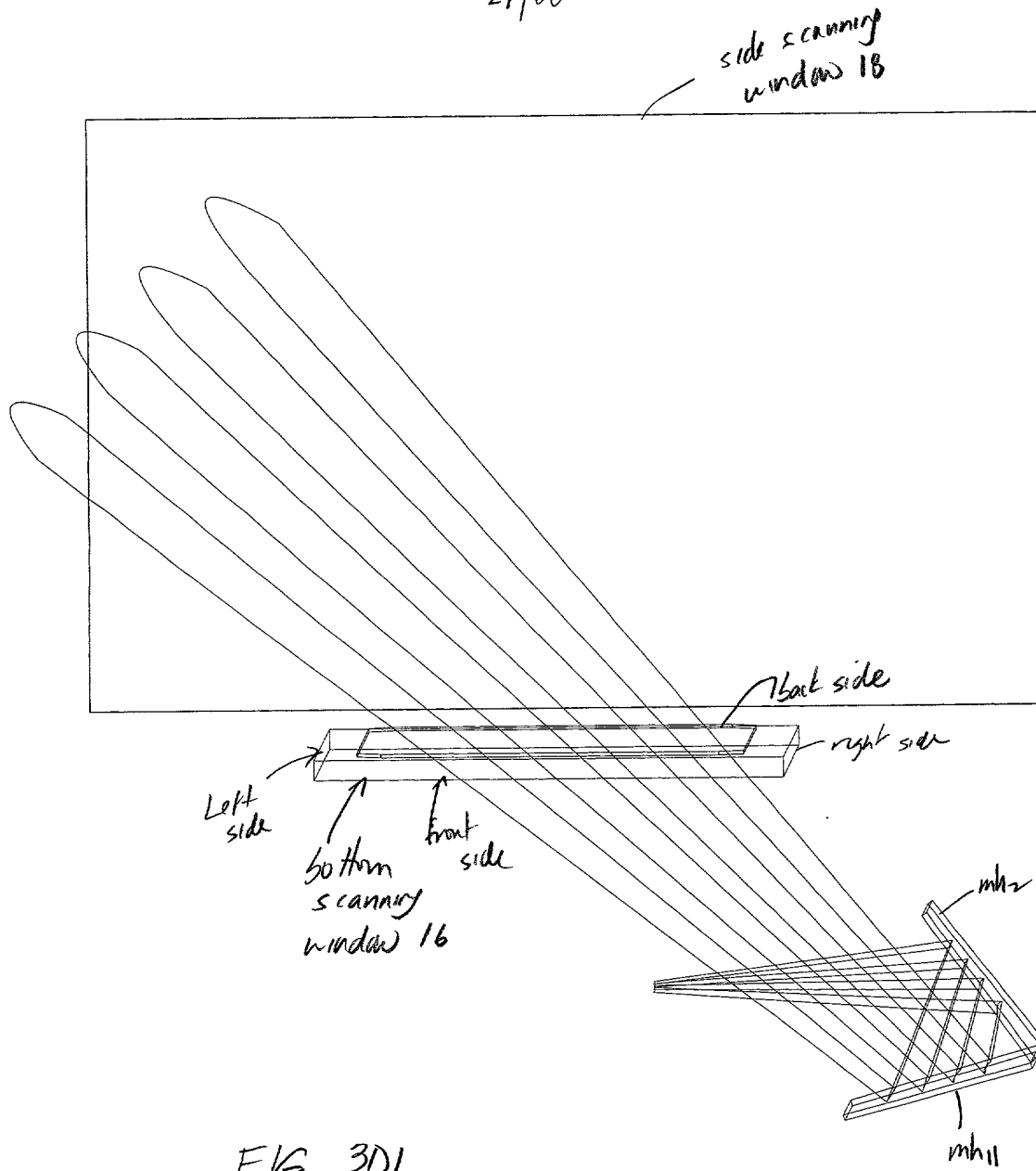


FIG 3D1

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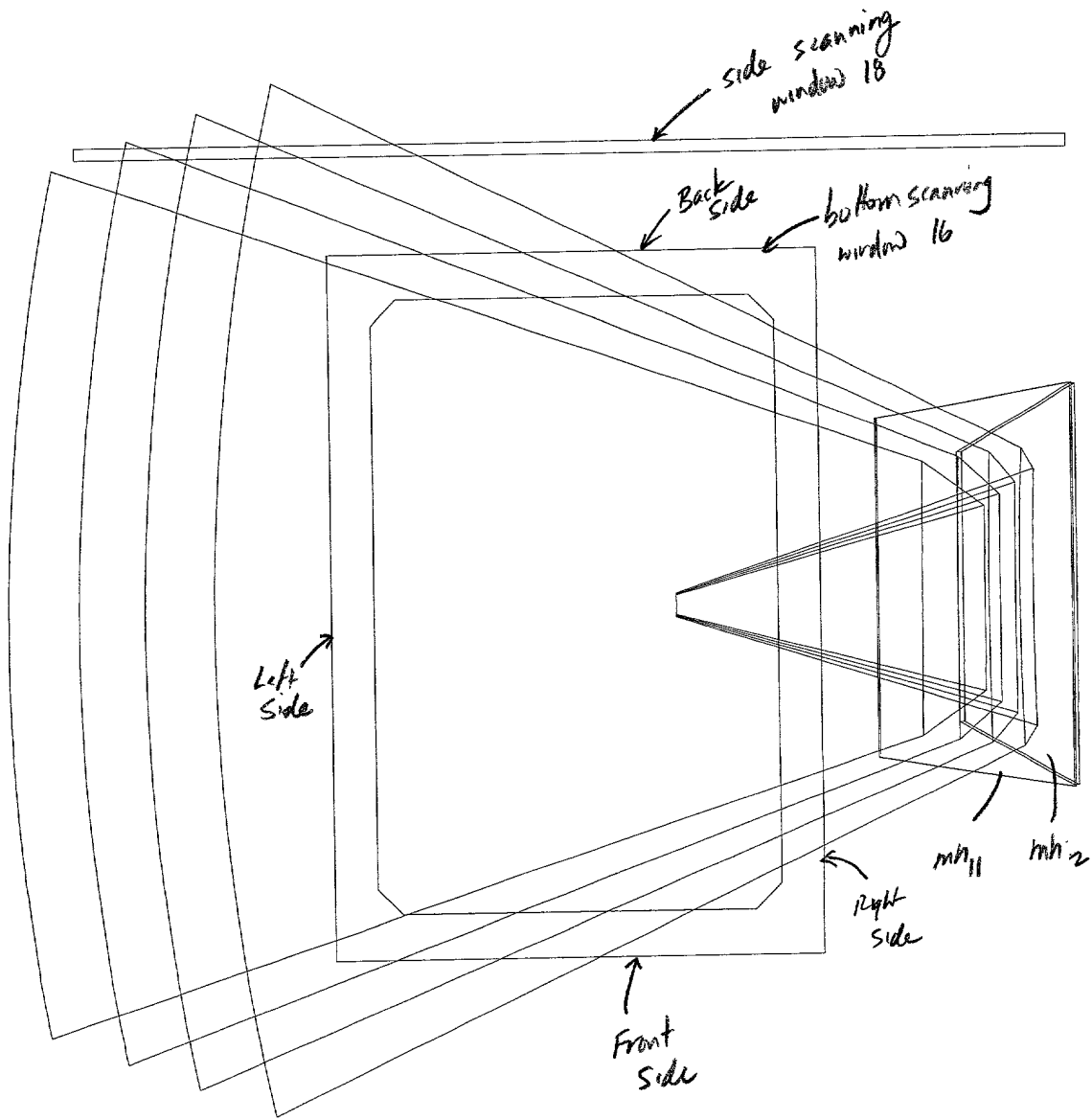


FIG. 3D2

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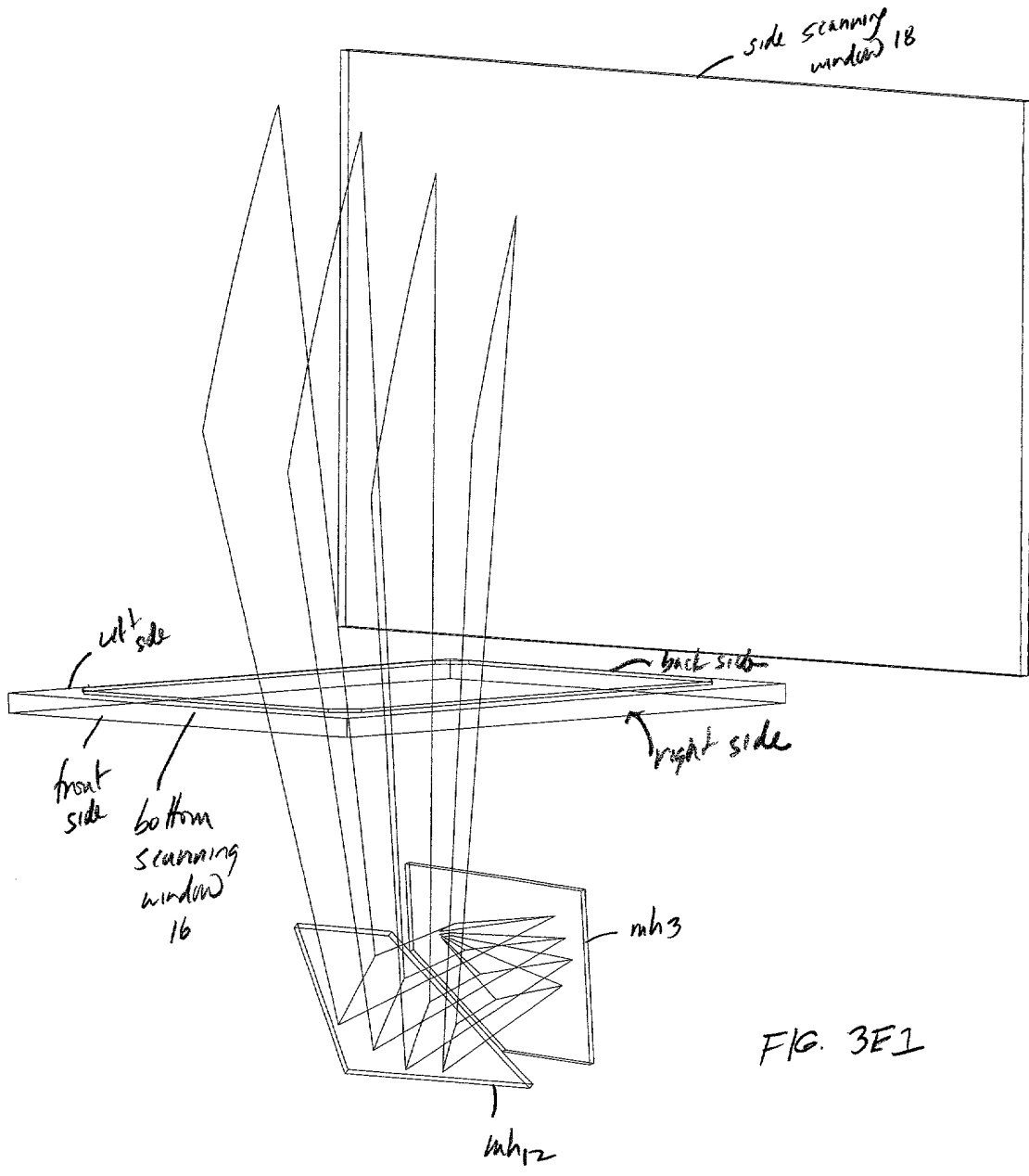


FIG. 3E1

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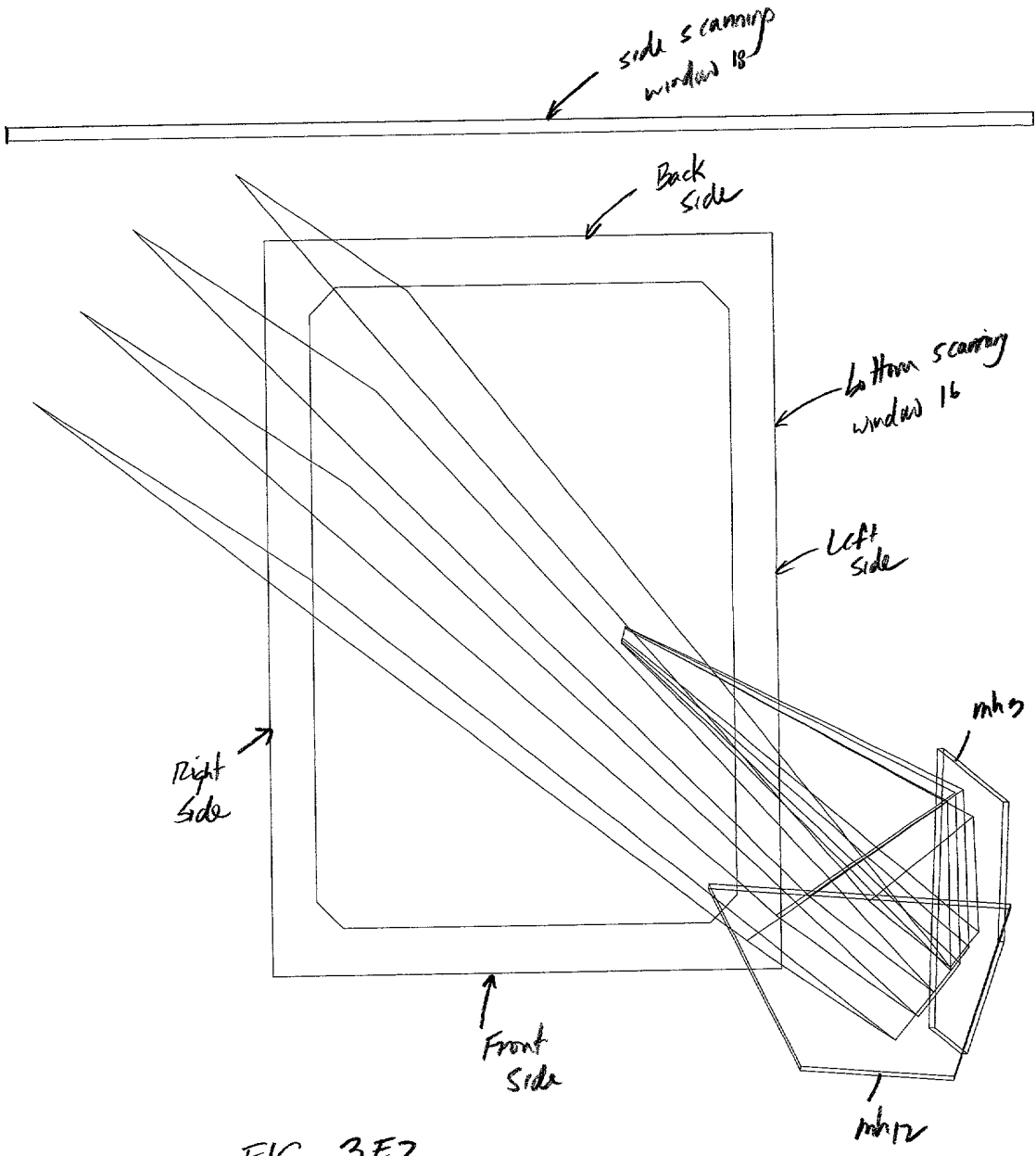


FIG. 3E2

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side scanning
window 18

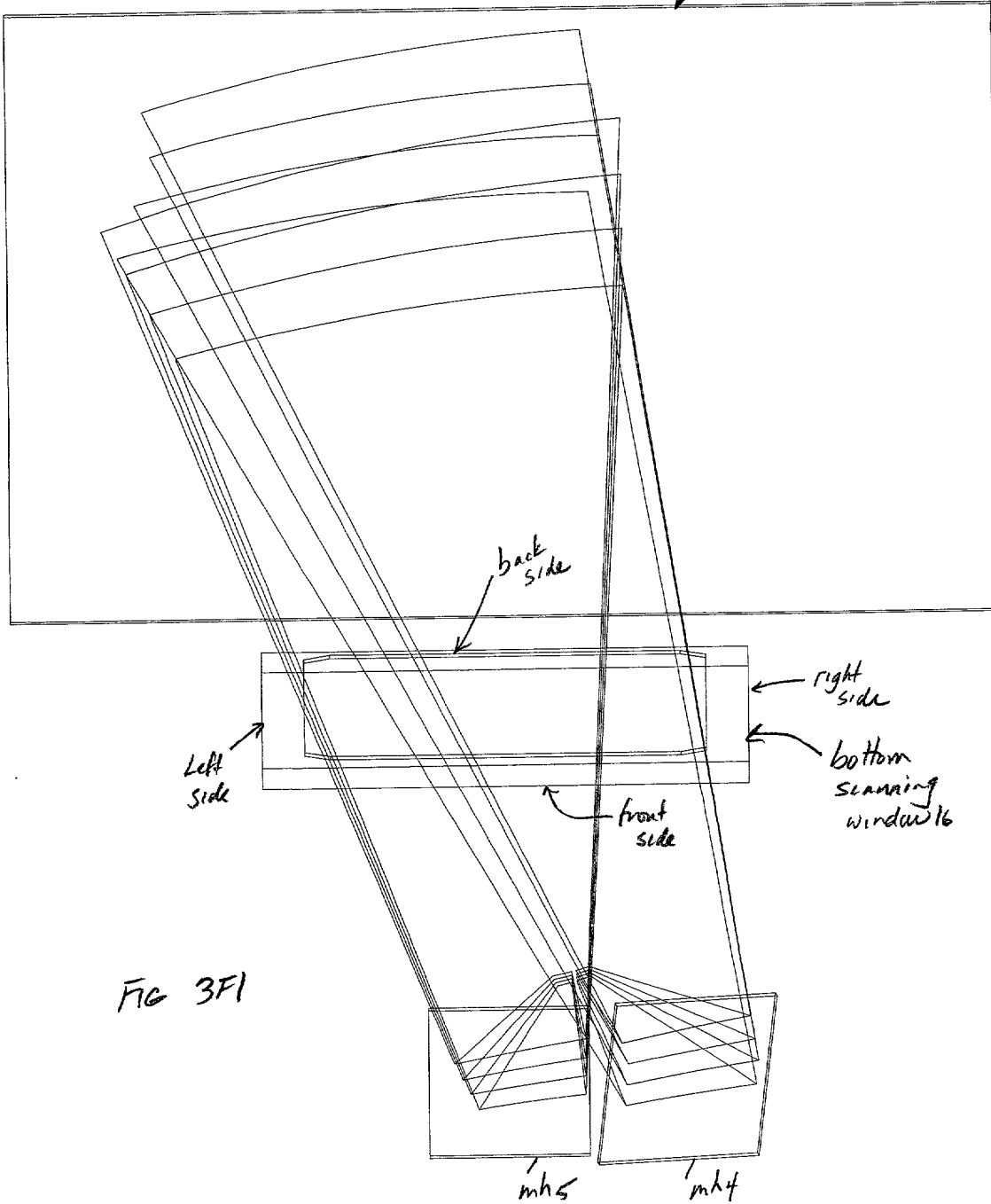


FIG 3F1

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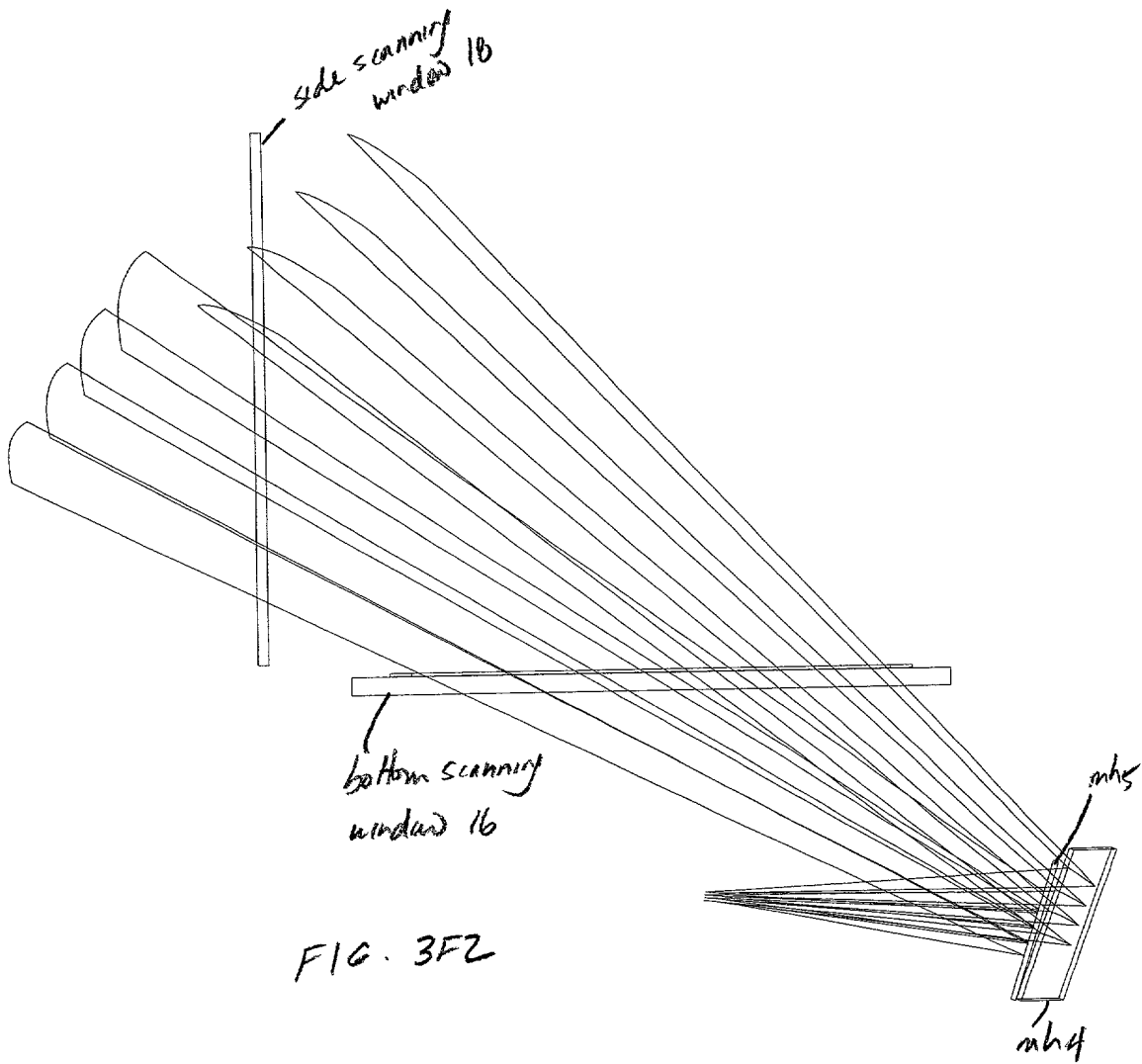
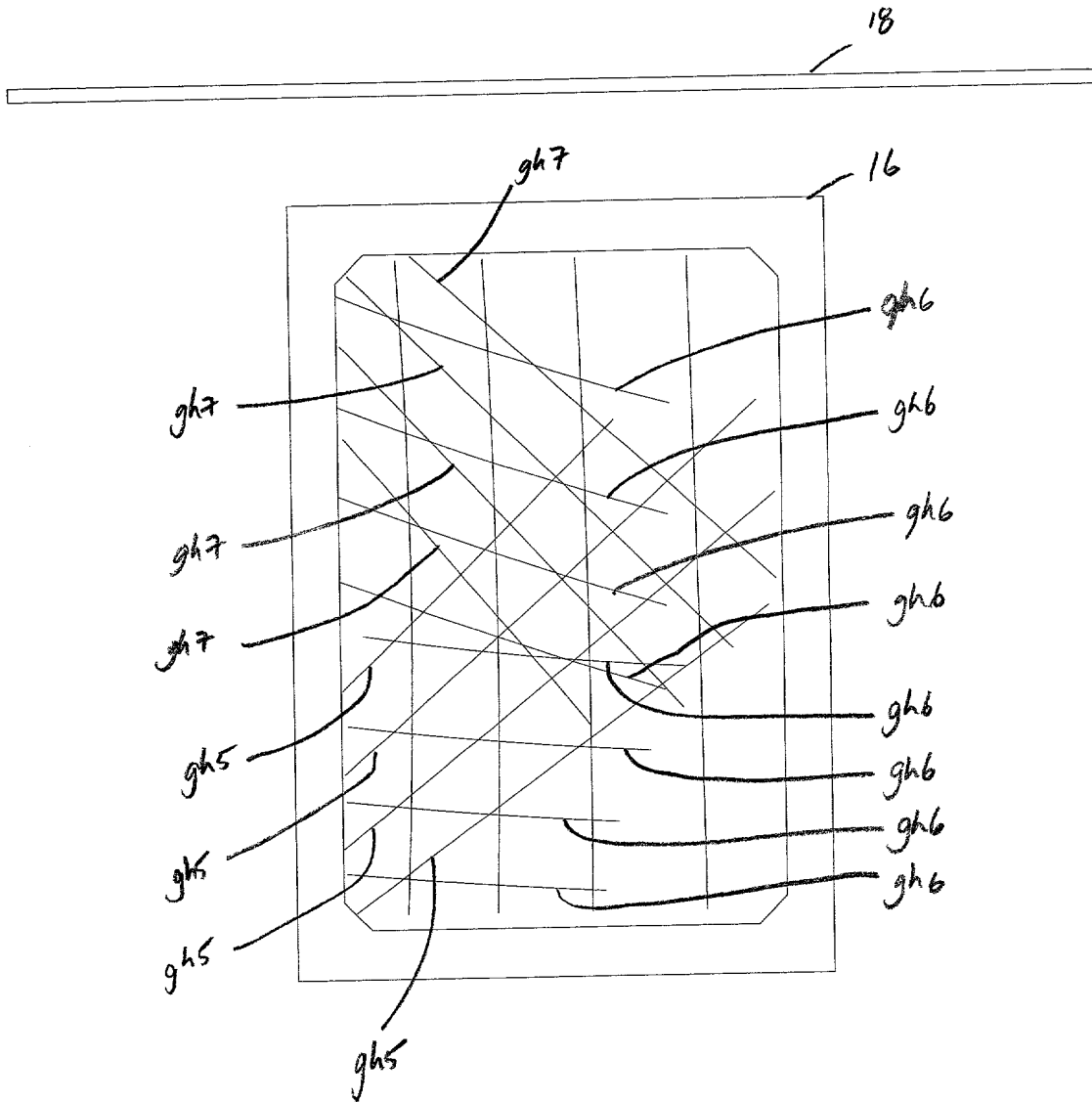


FIG. 3F2

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FIG. 4A



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side scanning window 1b

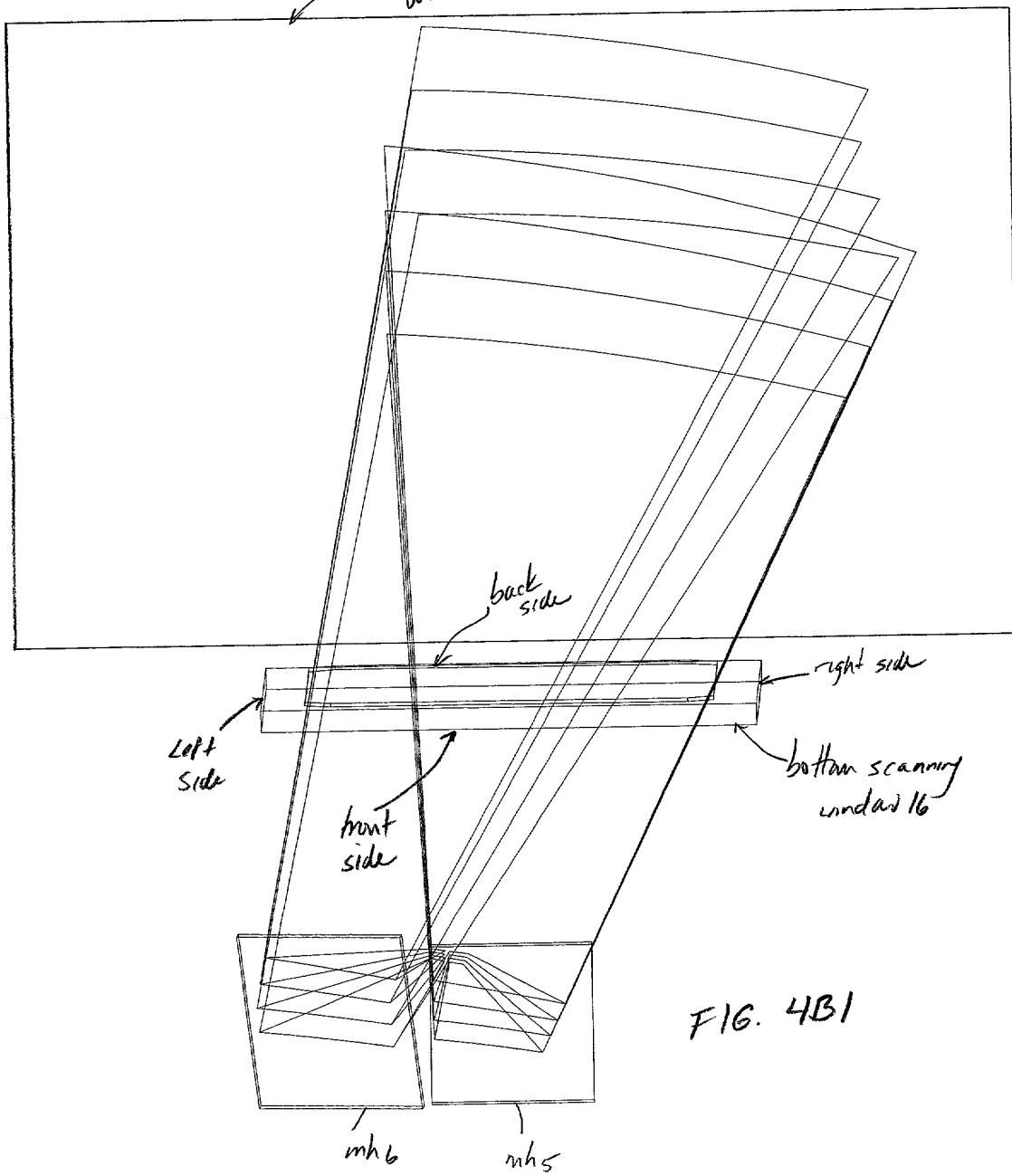


FIG. 4B1

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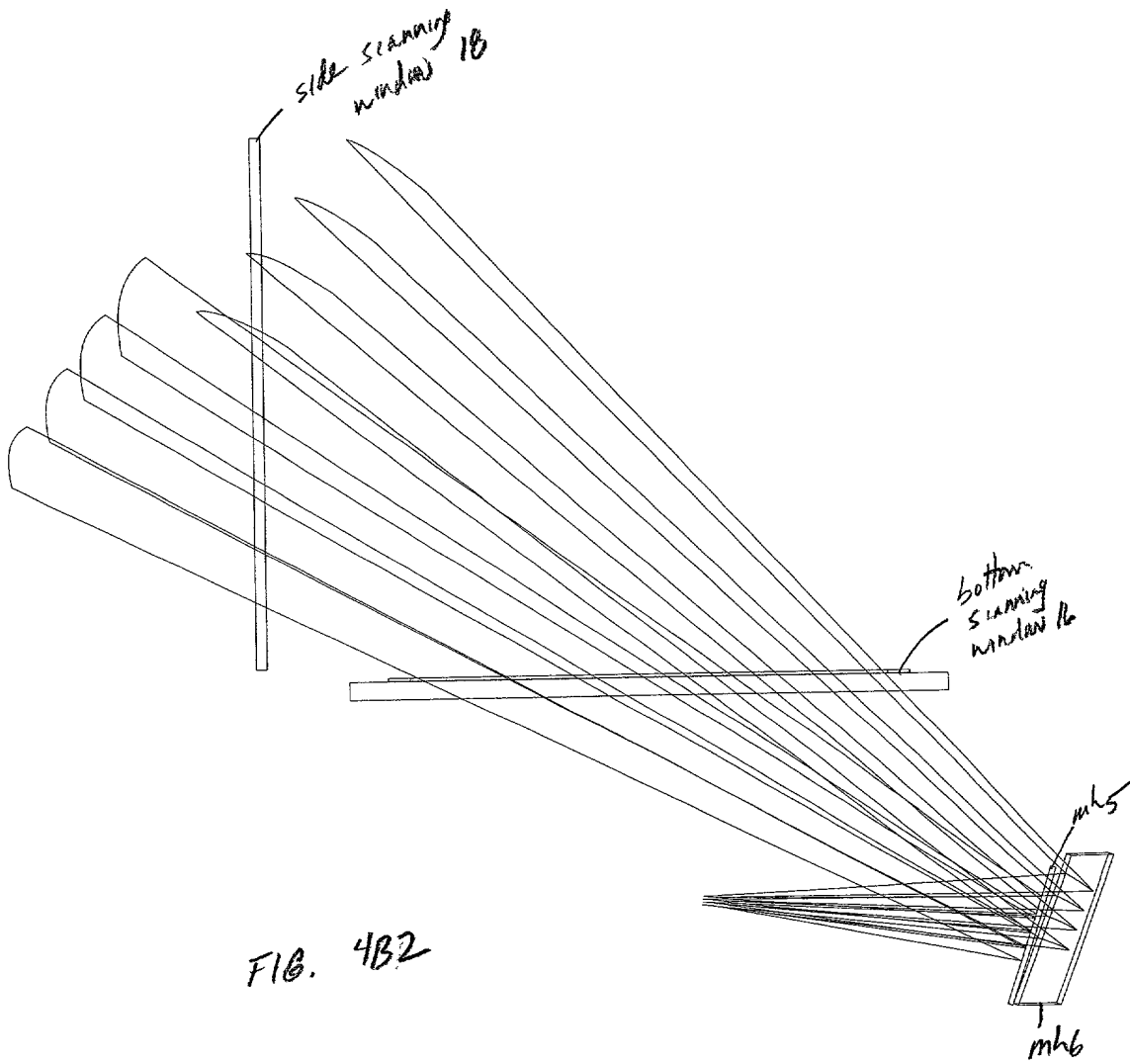
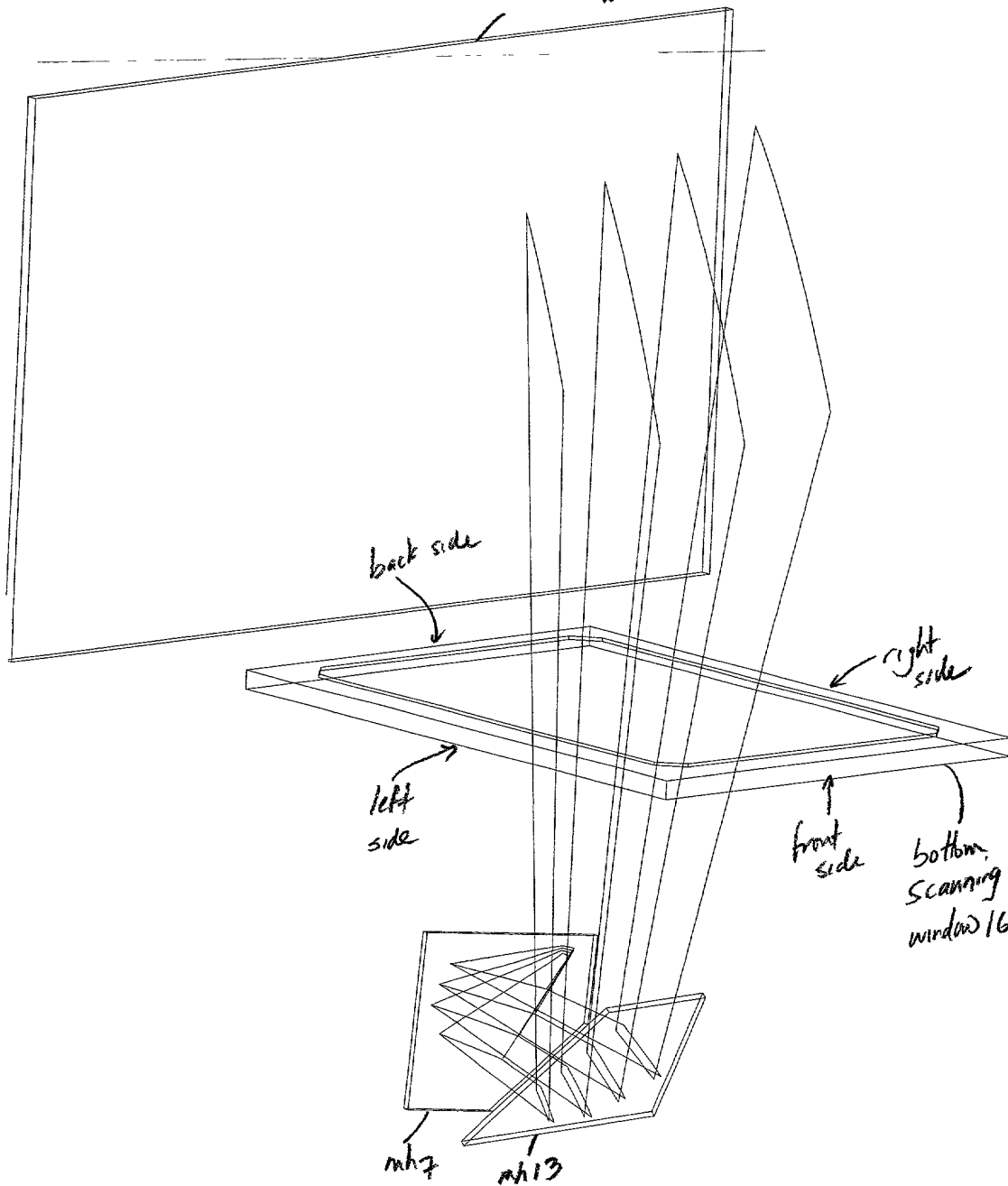


FIG. 4B2

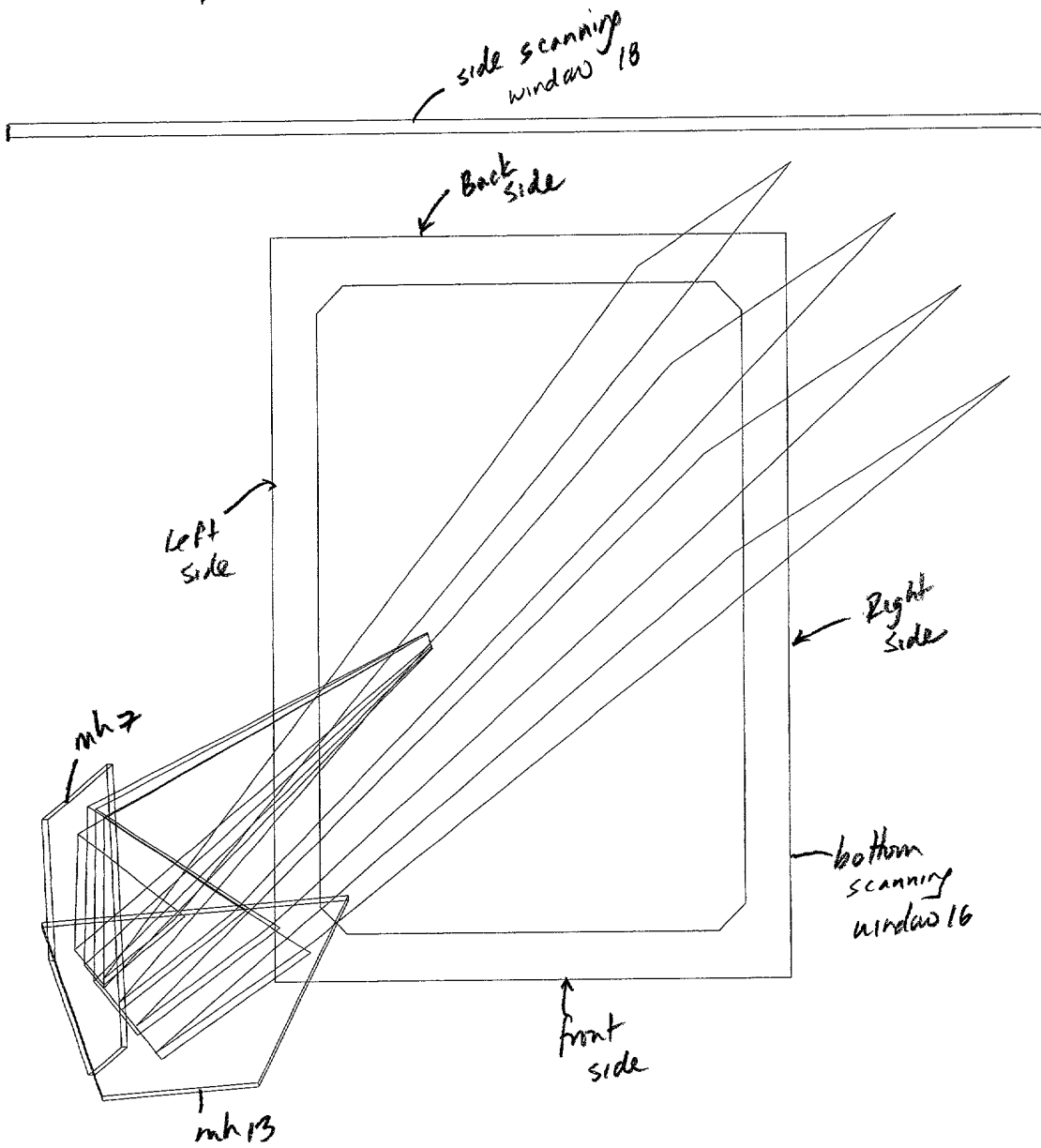
FIG. 4C1

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side scanning window 18



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FIG. 4C2



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side scanning window 18

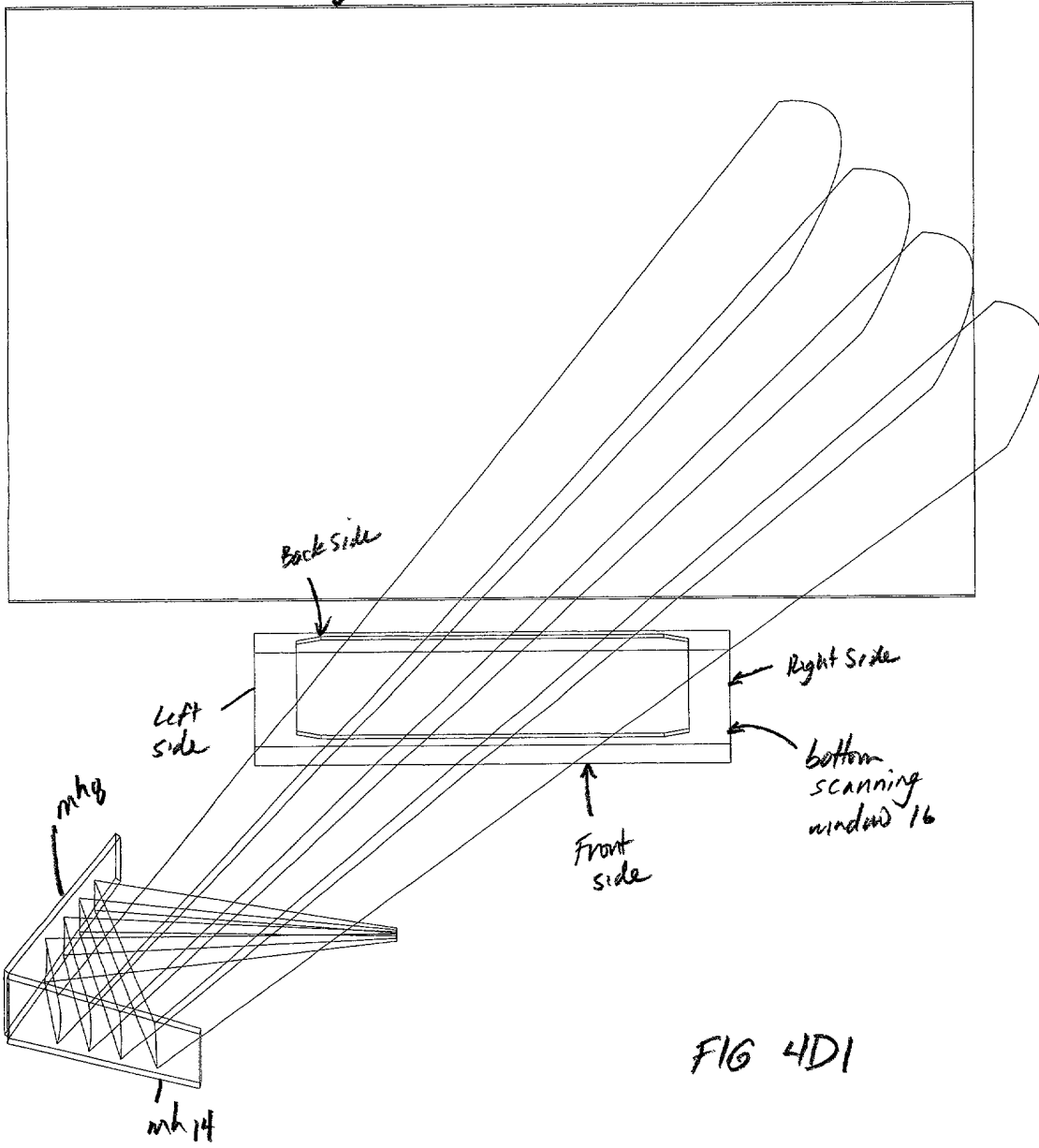


FIG 4D1

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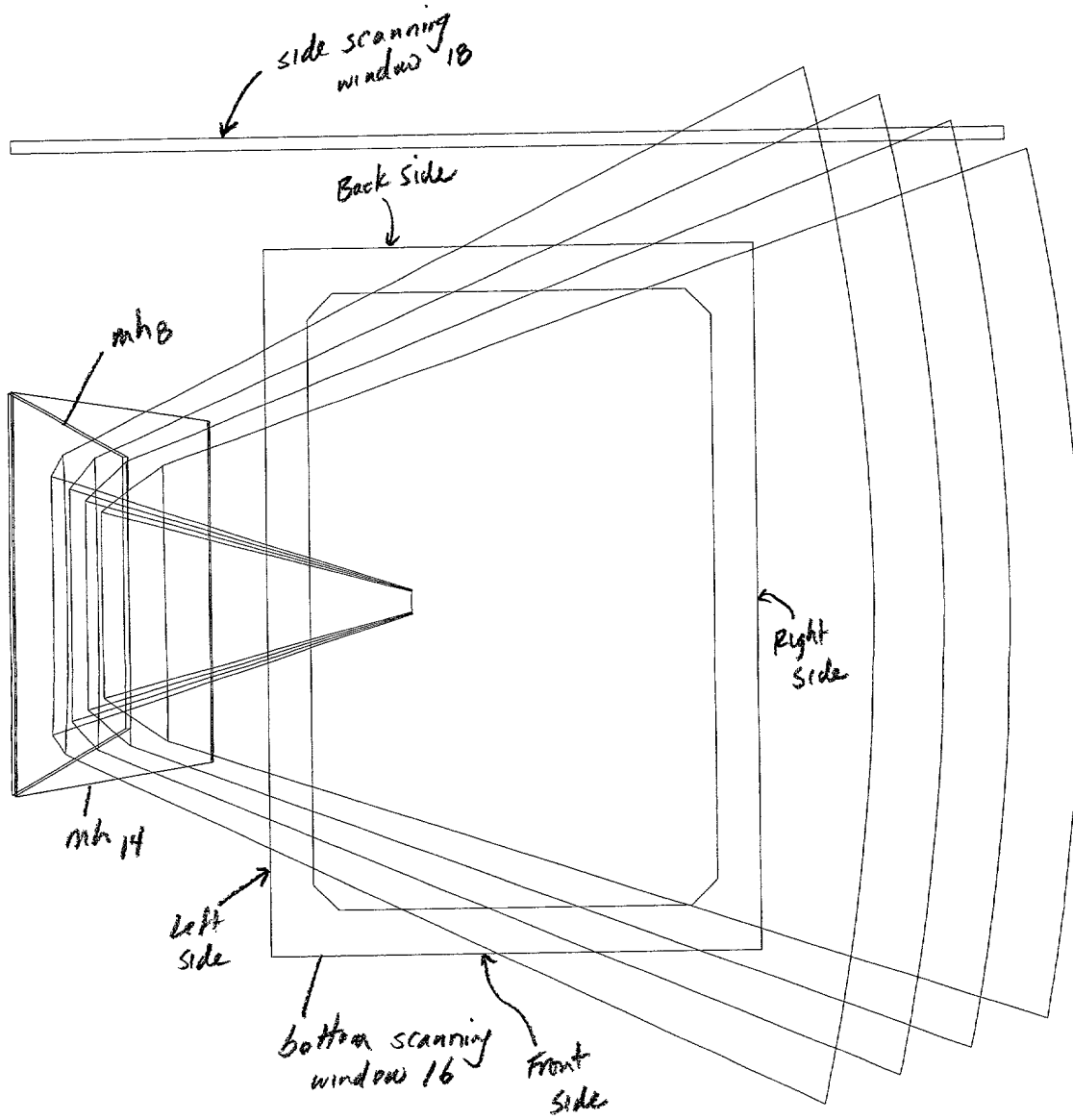


FIG. 4D2

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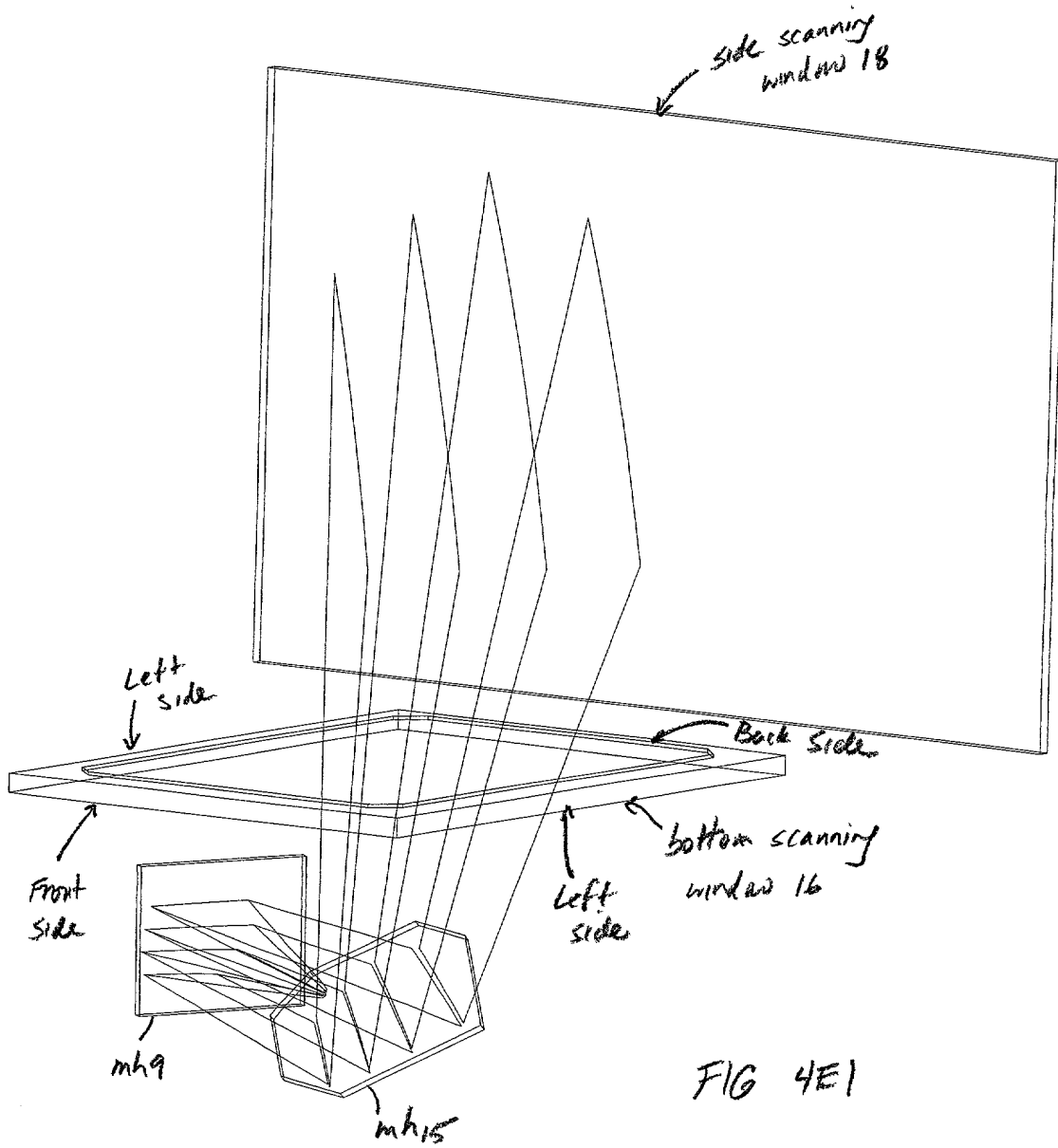


FIG 4E1

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FIG. 4E2

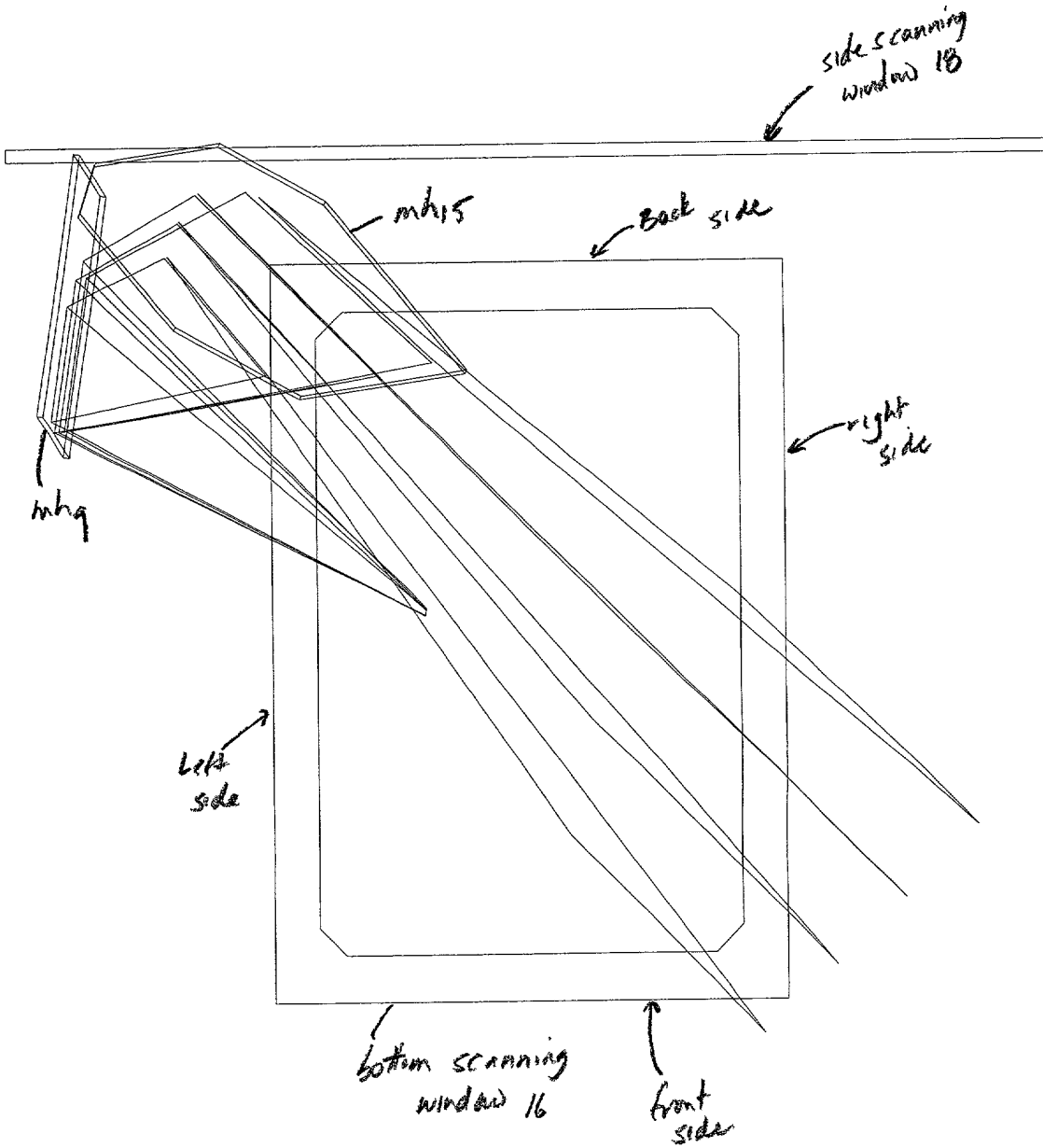
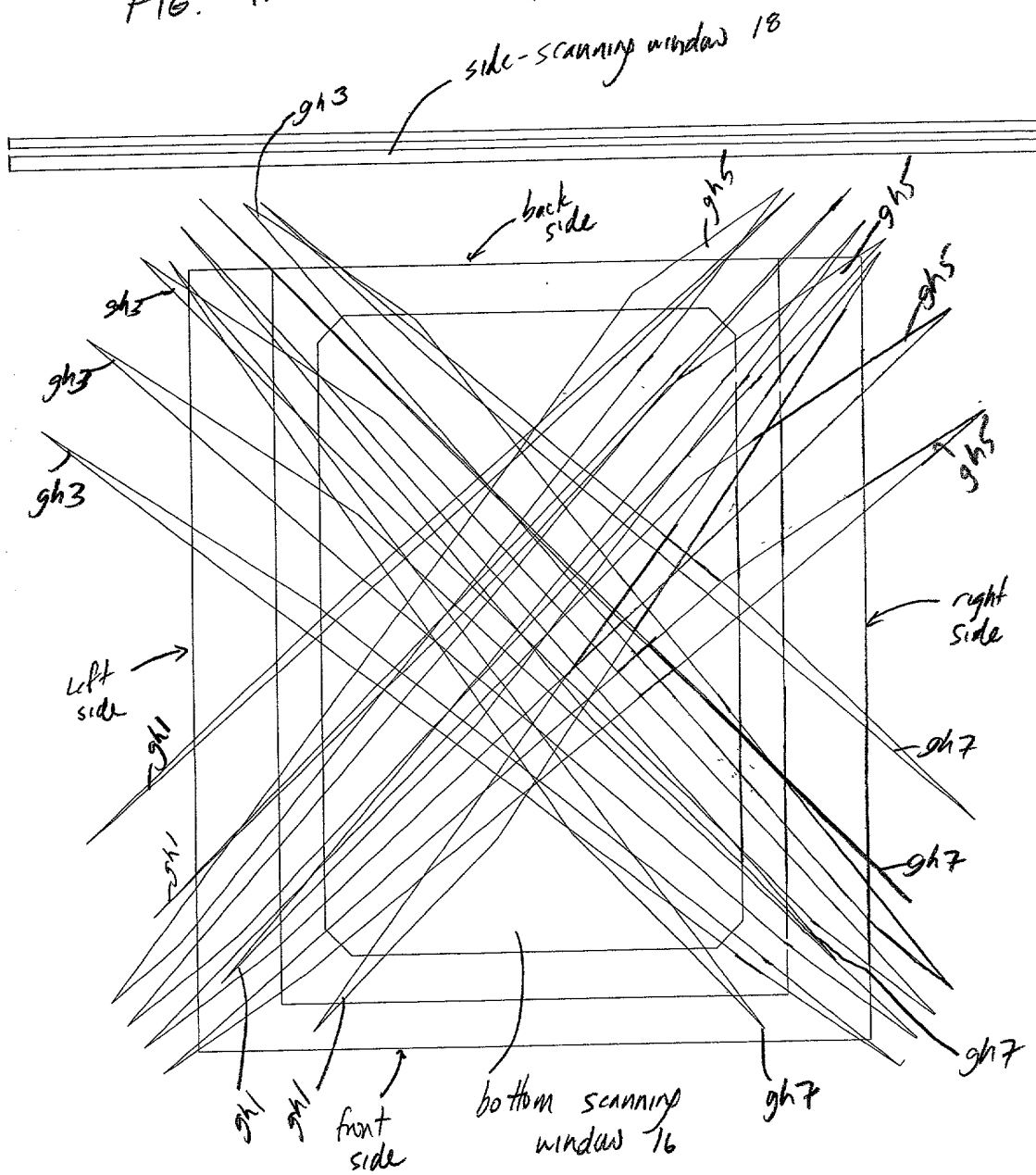


FIG. 4F

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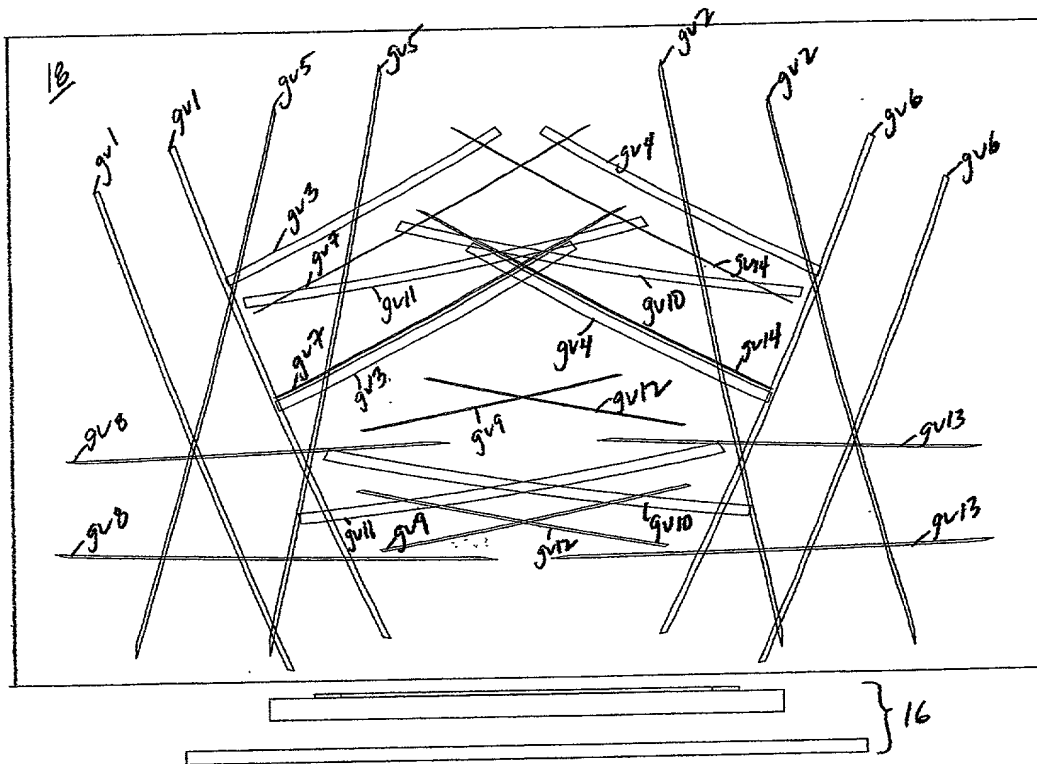


FIG. 5A

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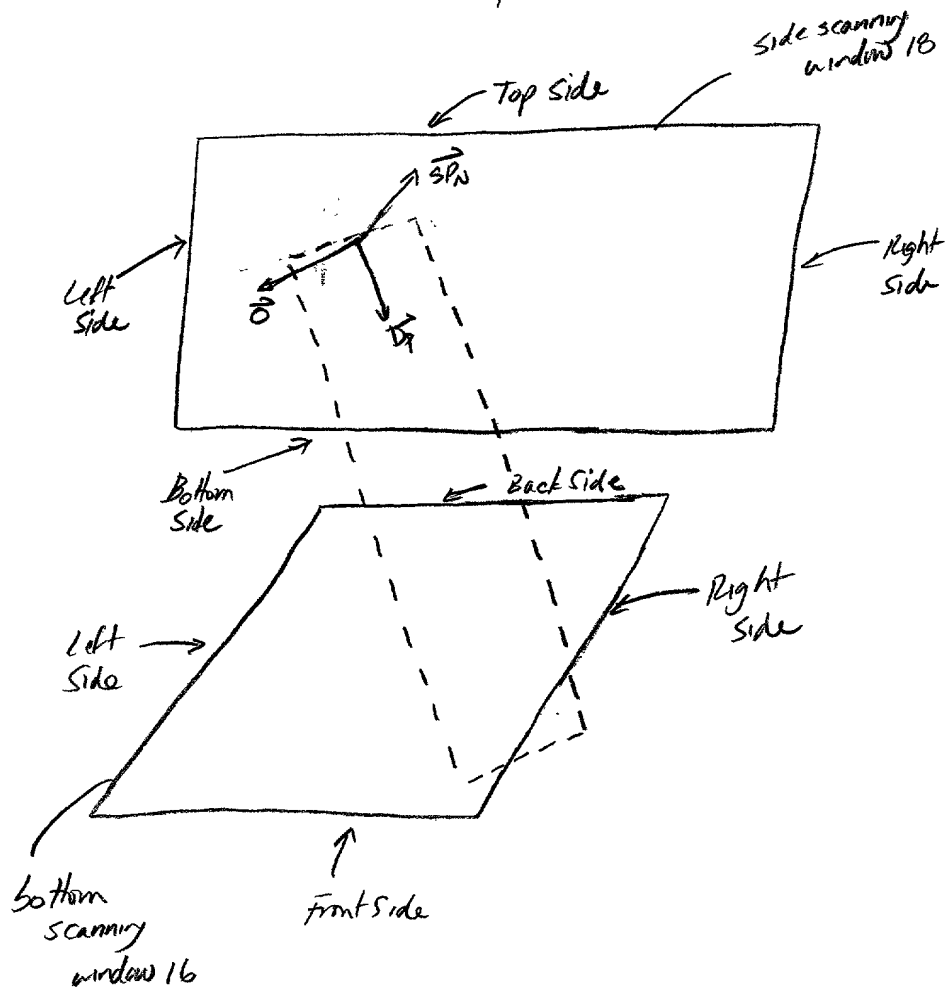


FIG SBI

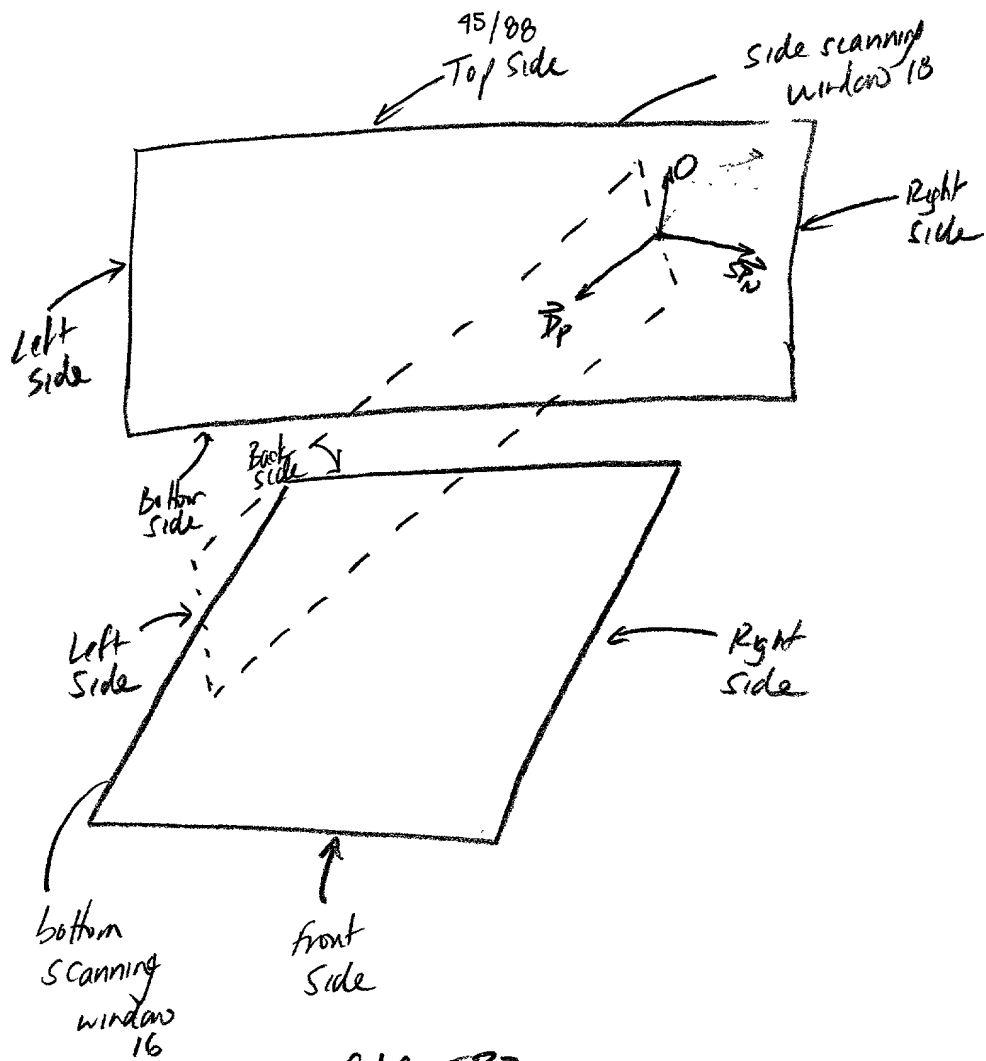


FIG. 5B2

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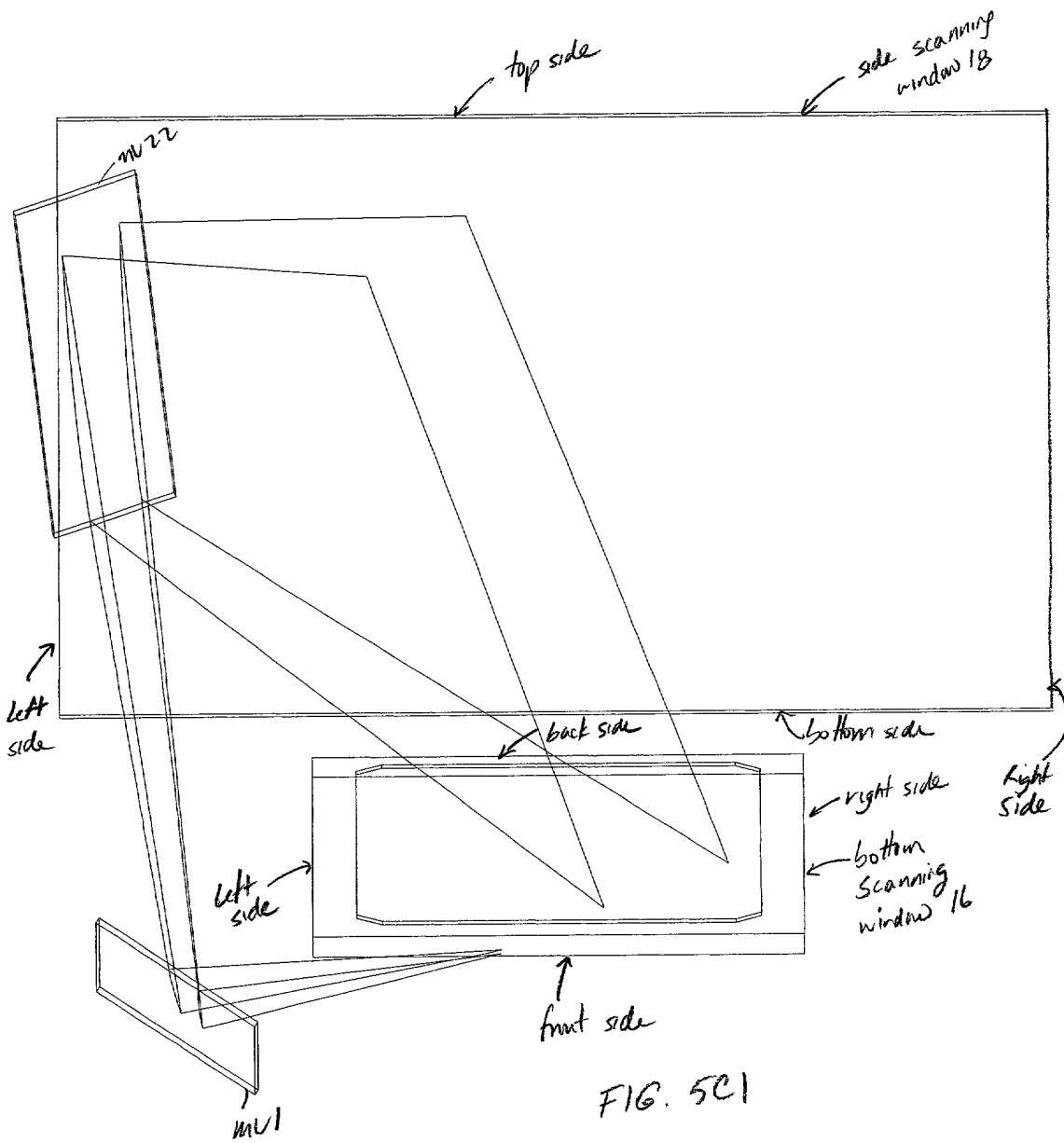
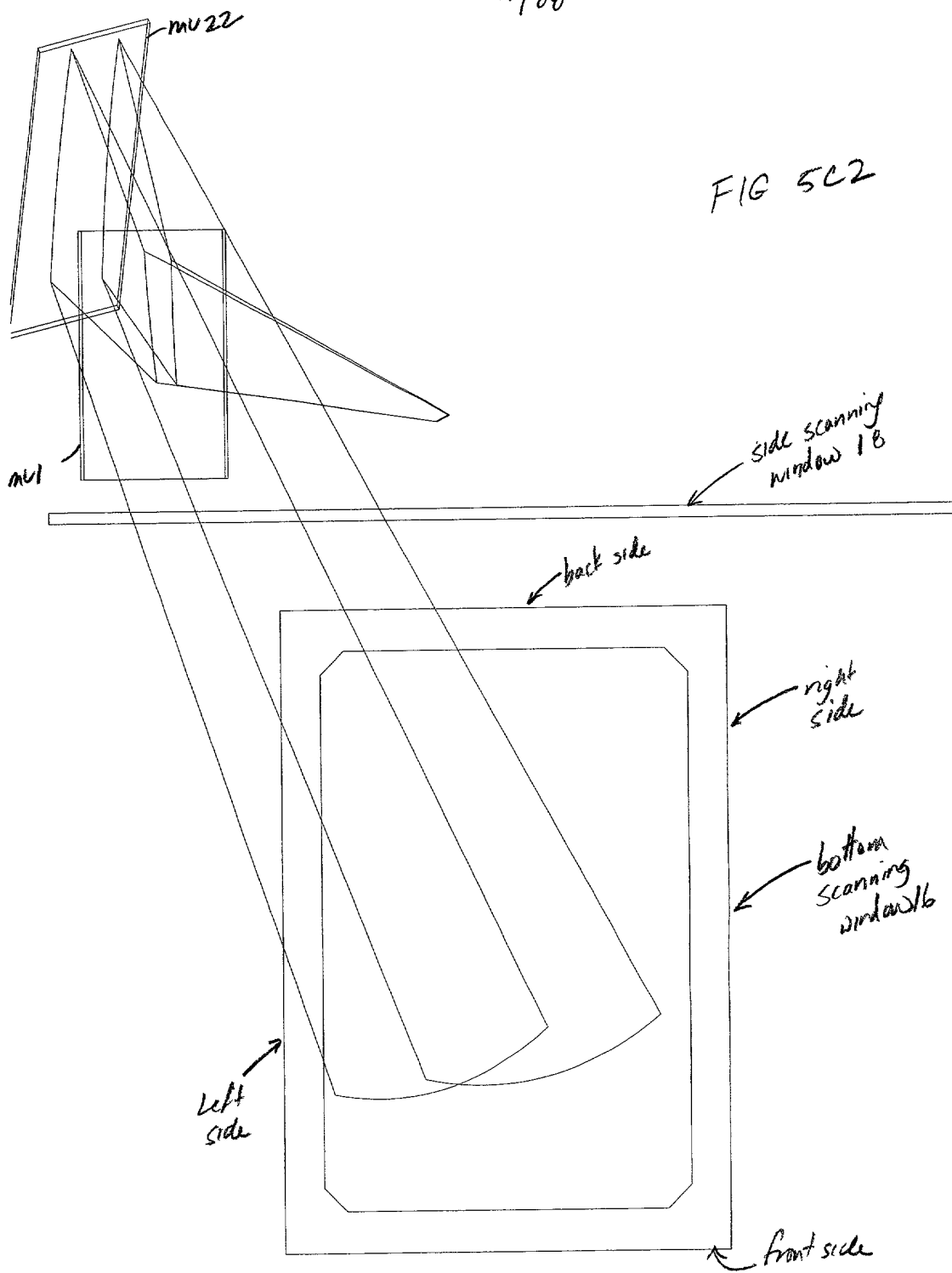


FIG. 5C1

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FIG 5C2



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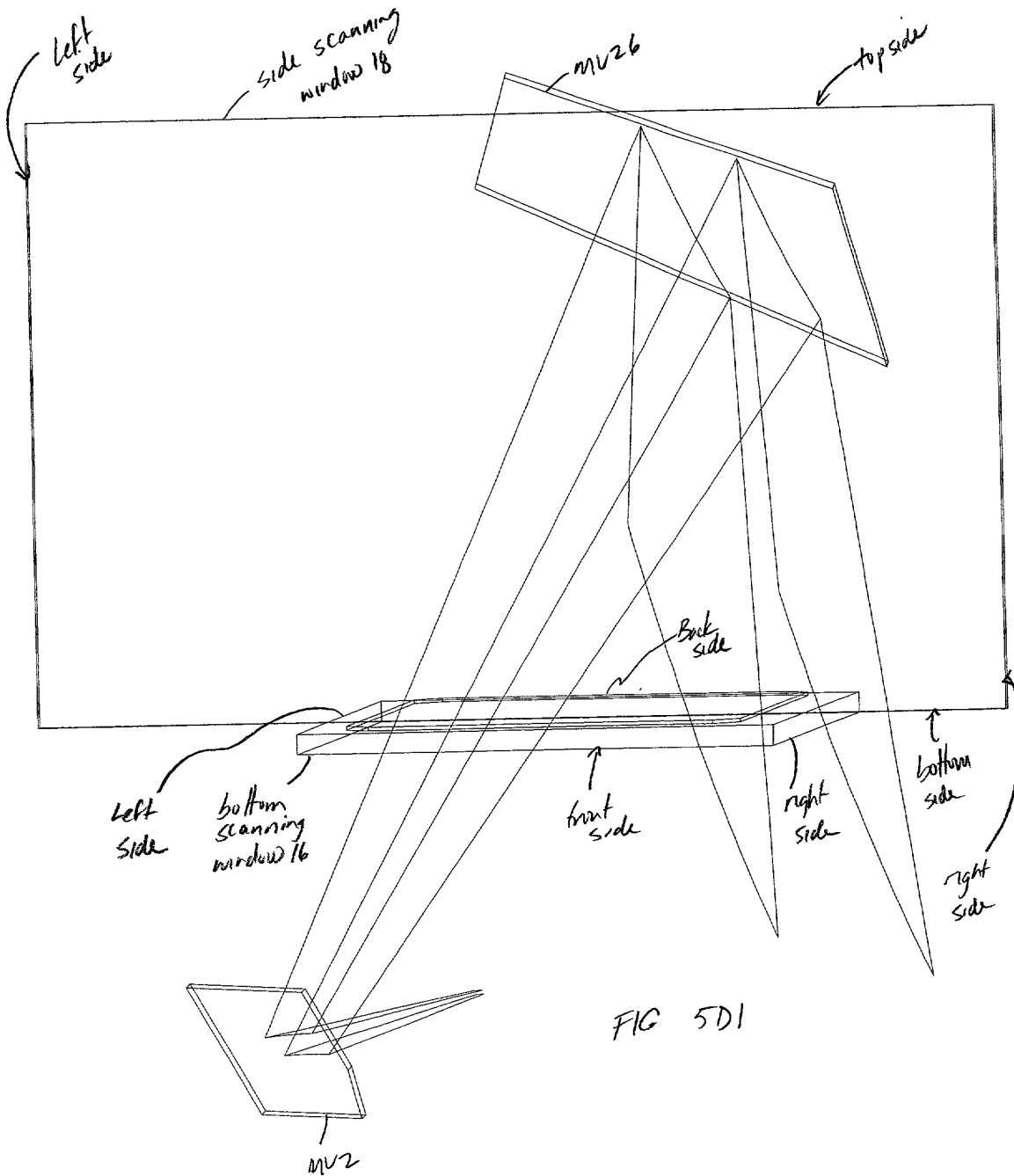
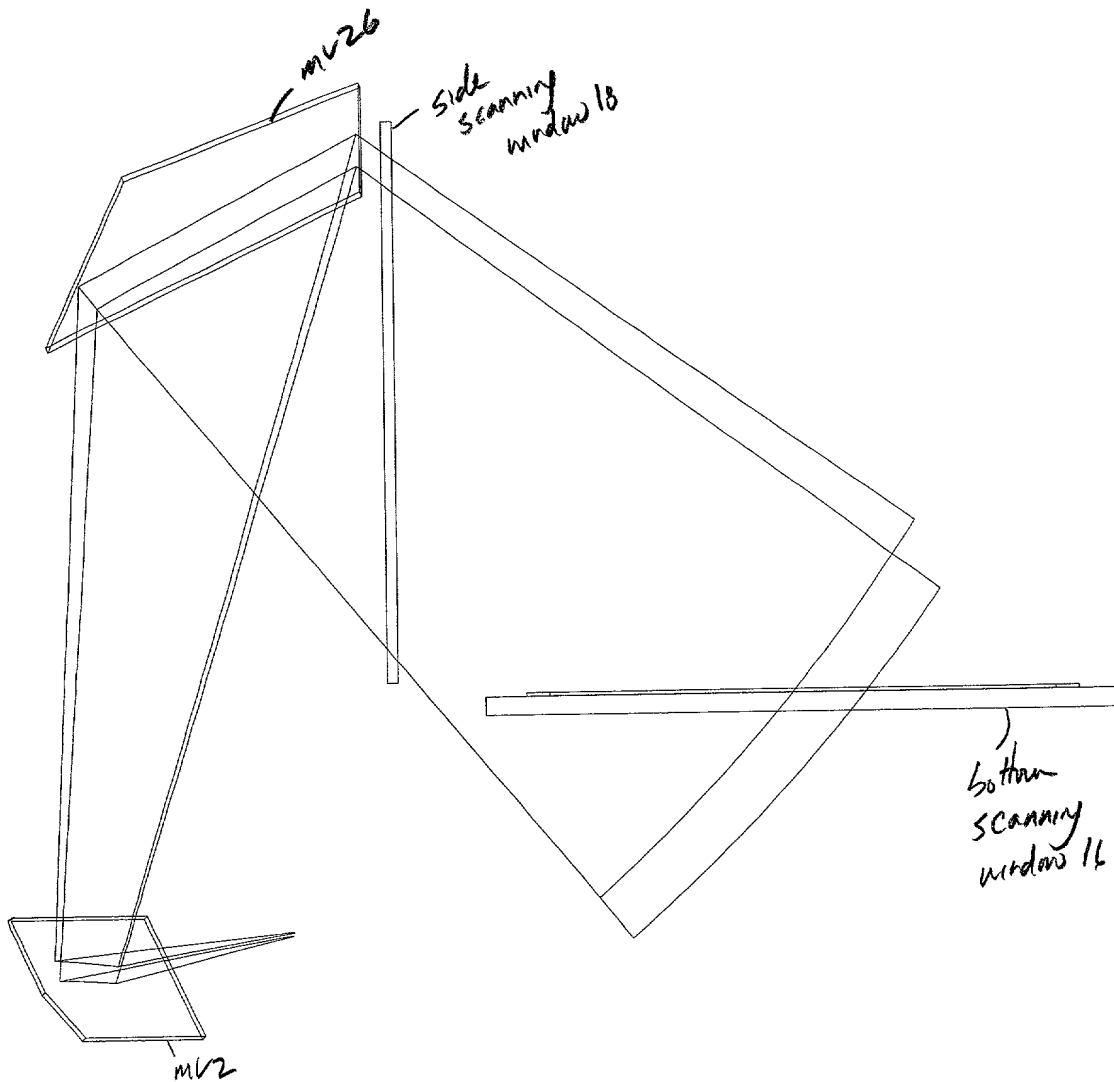


FIG 5D1

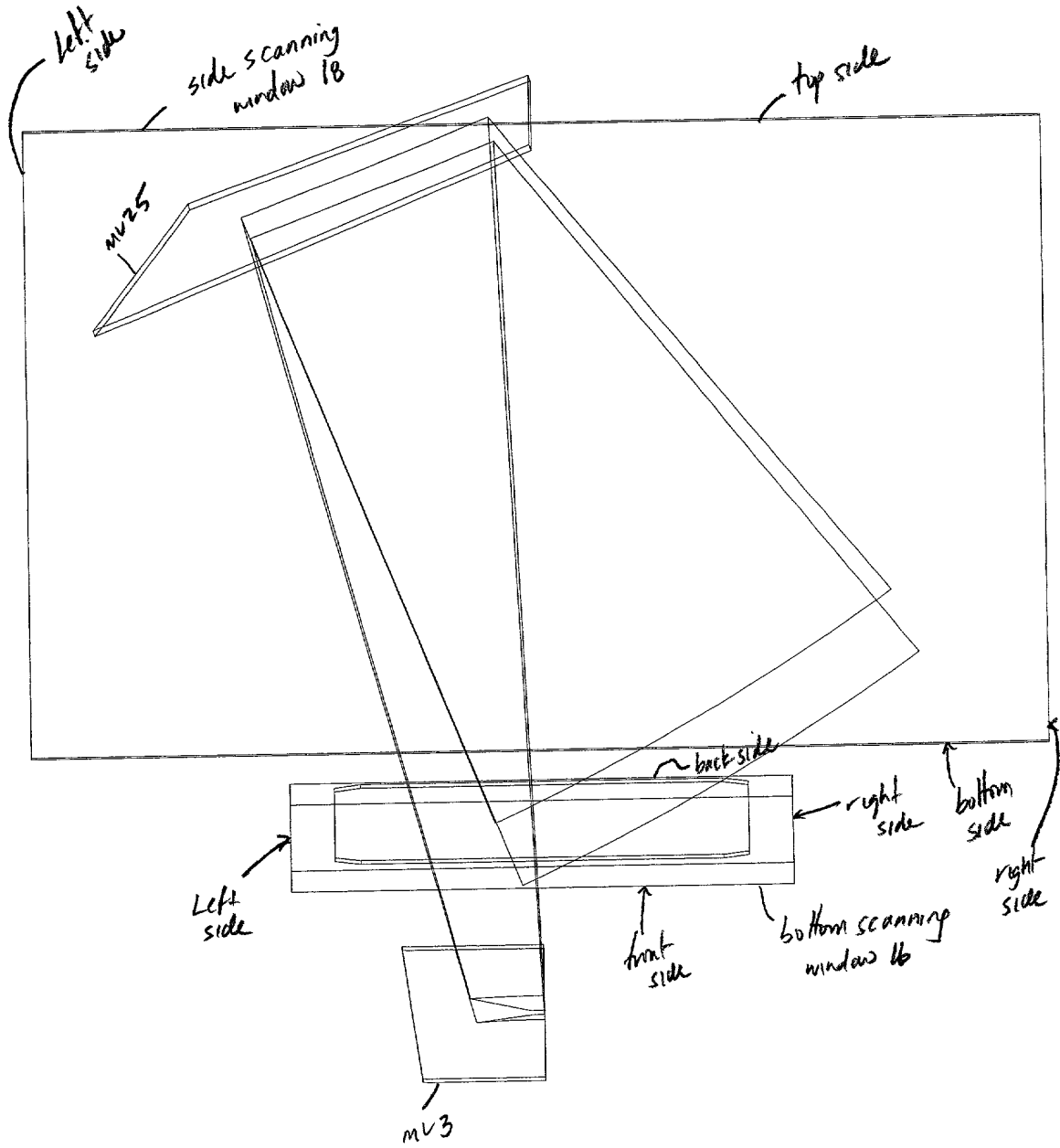
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FIG. 5D2



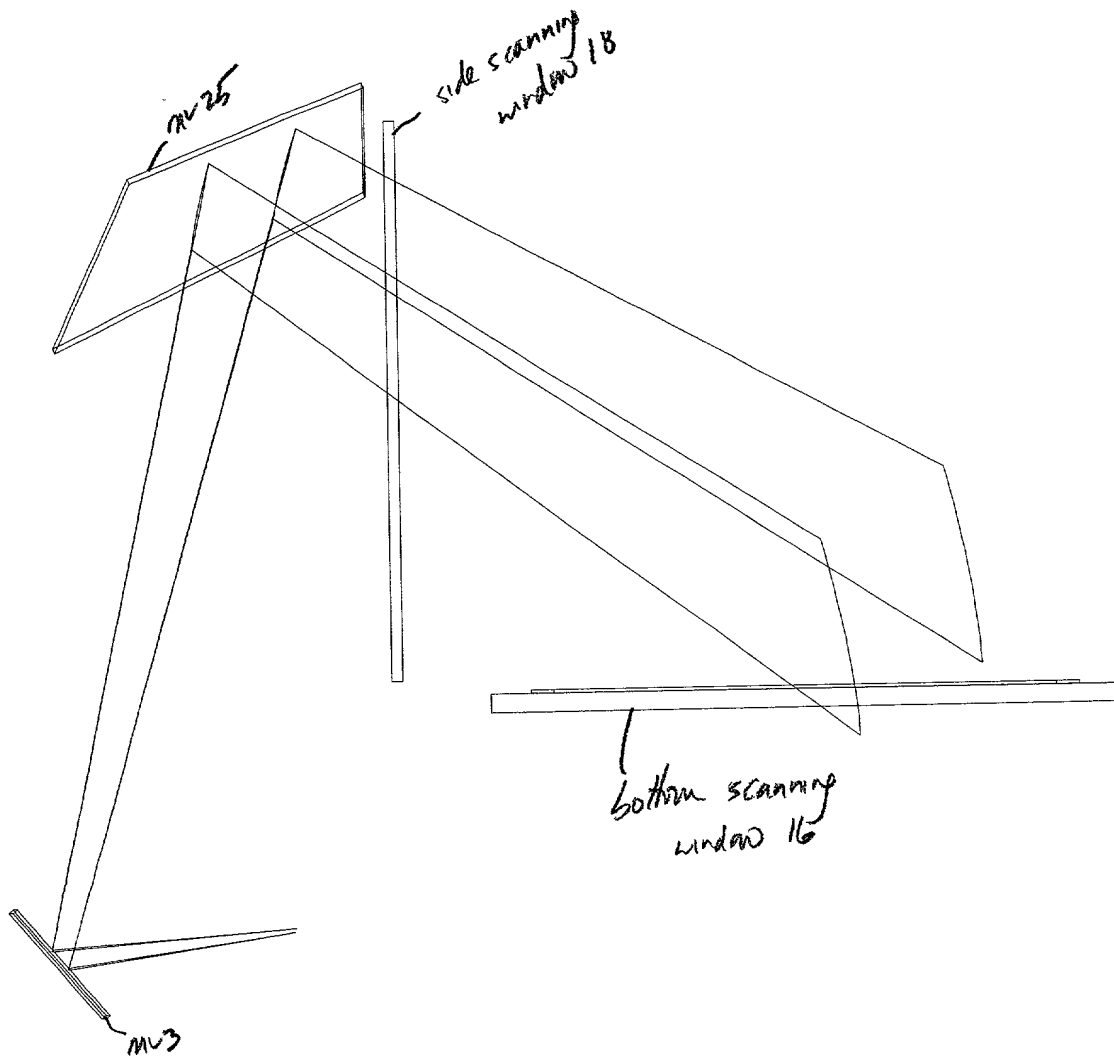
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FIG 5E1



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FIG 5E2



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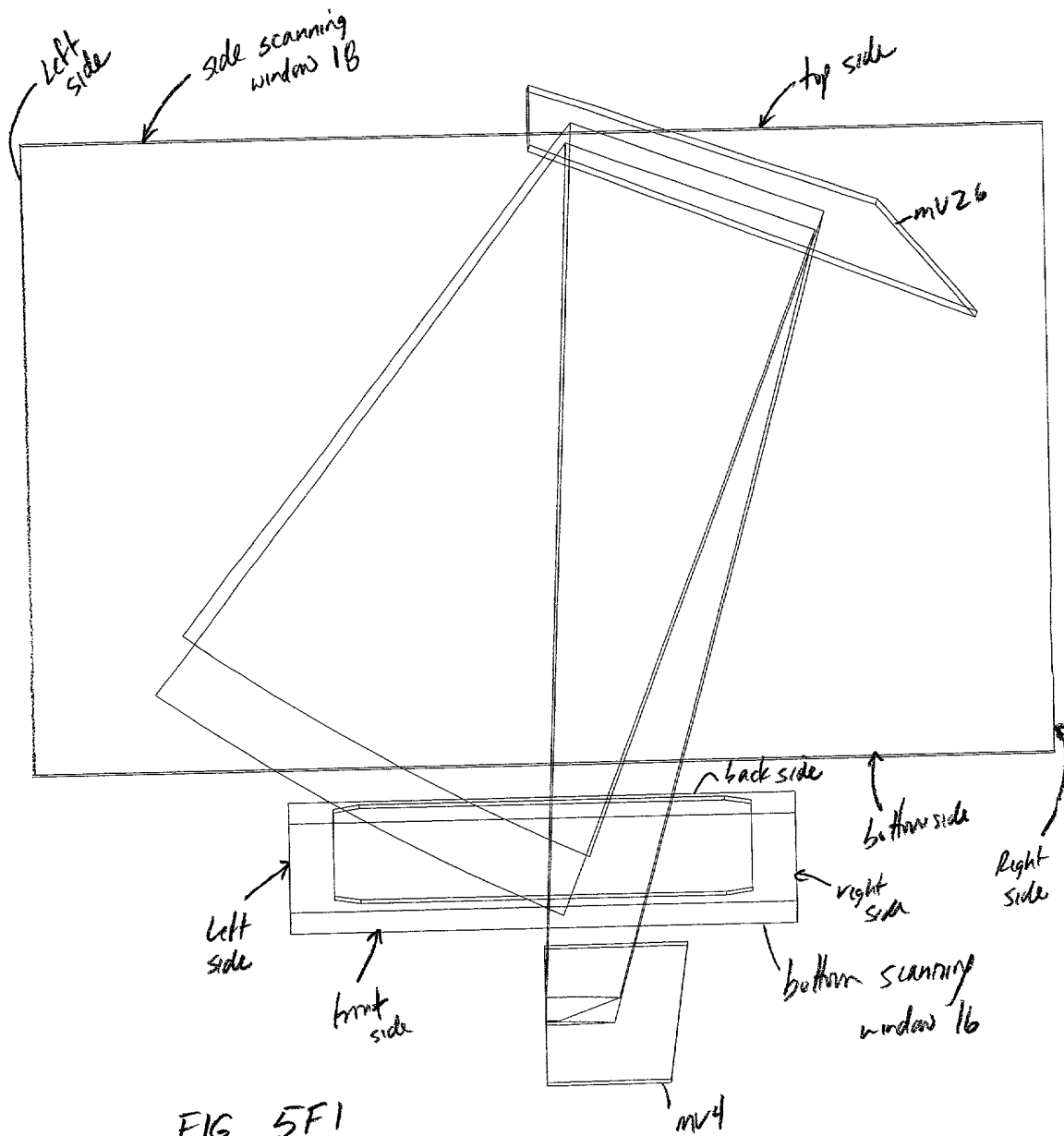


FIG 5F1

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FIG. 5 F2

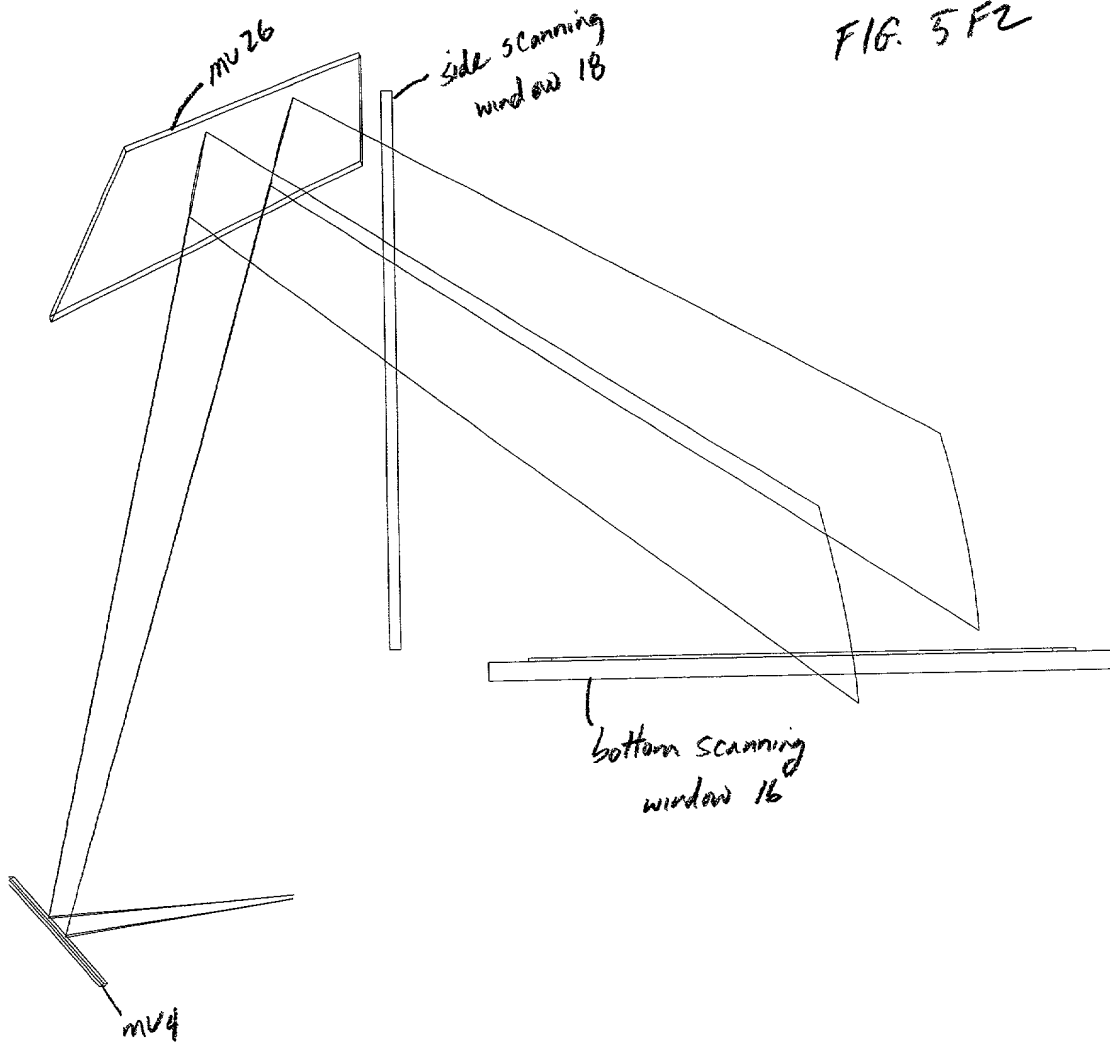
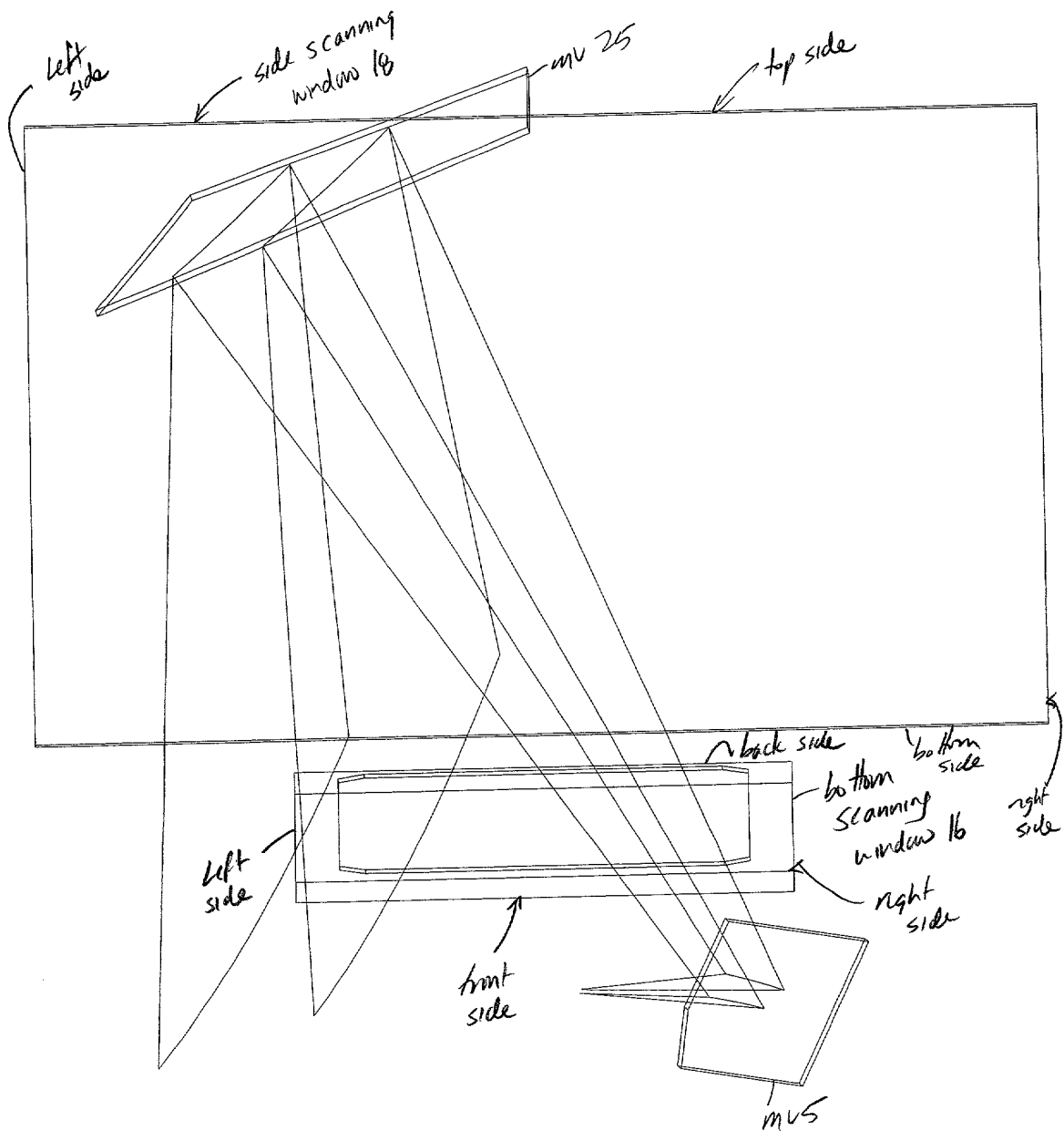


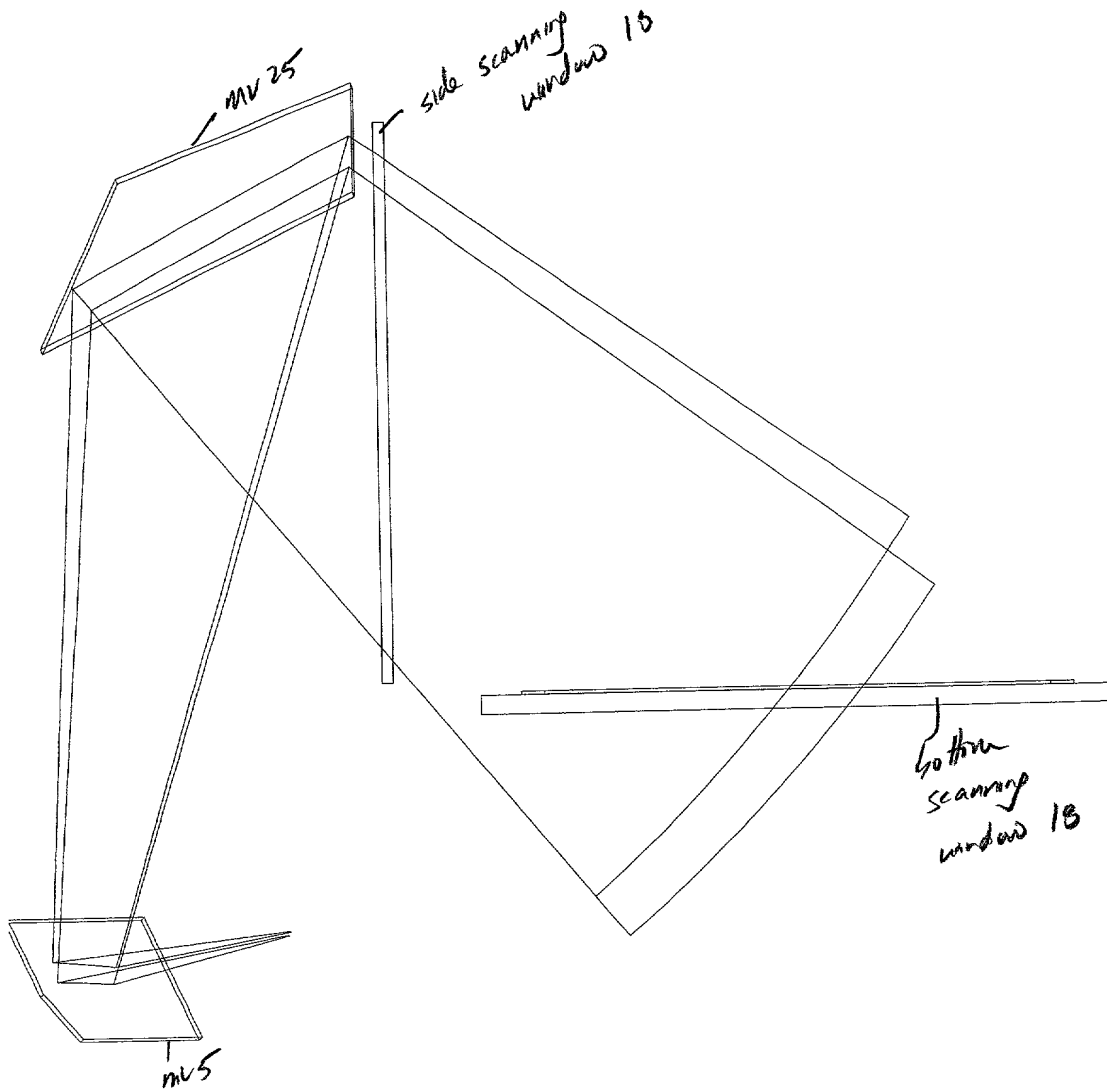
FIG. 5G1

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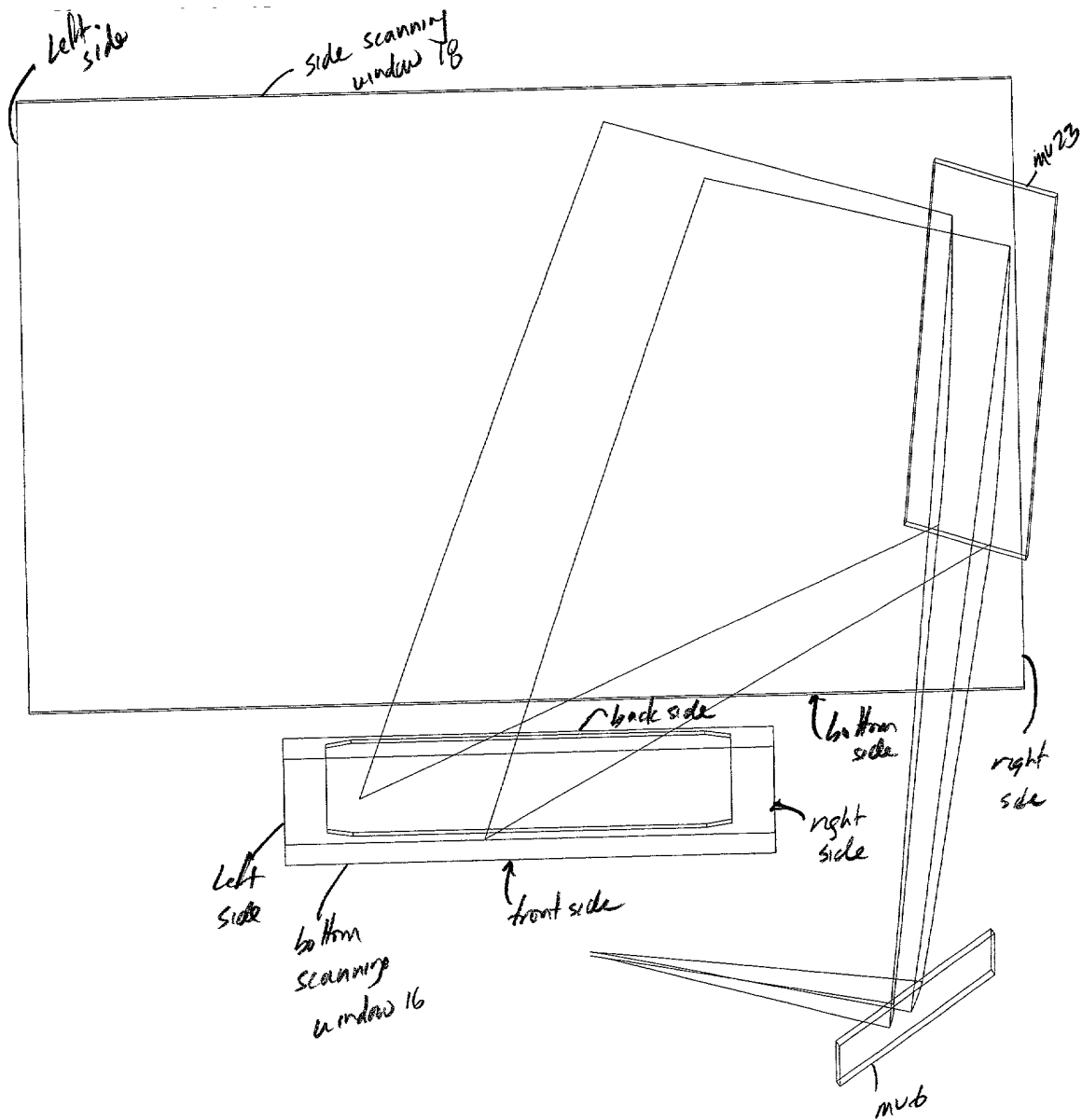
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FIG. 562



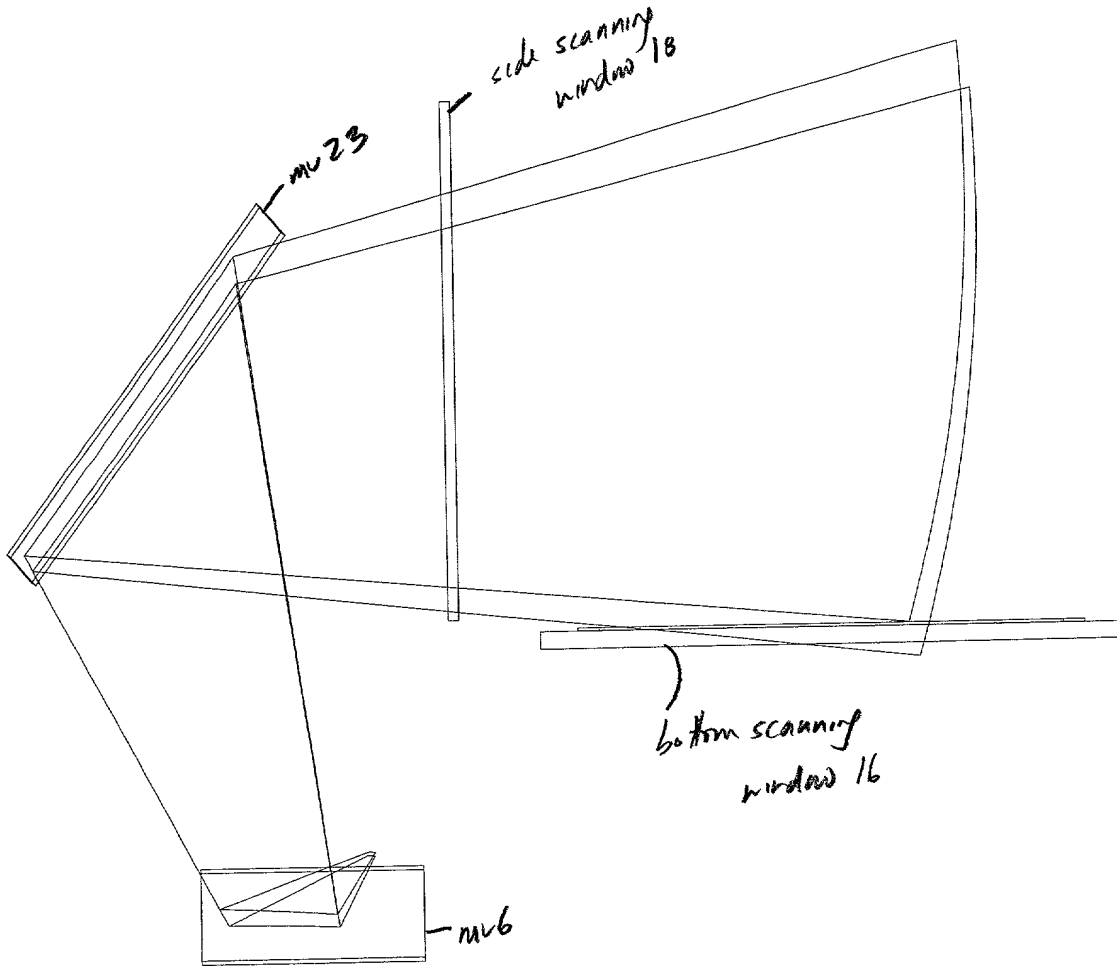
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FIG. 5H1



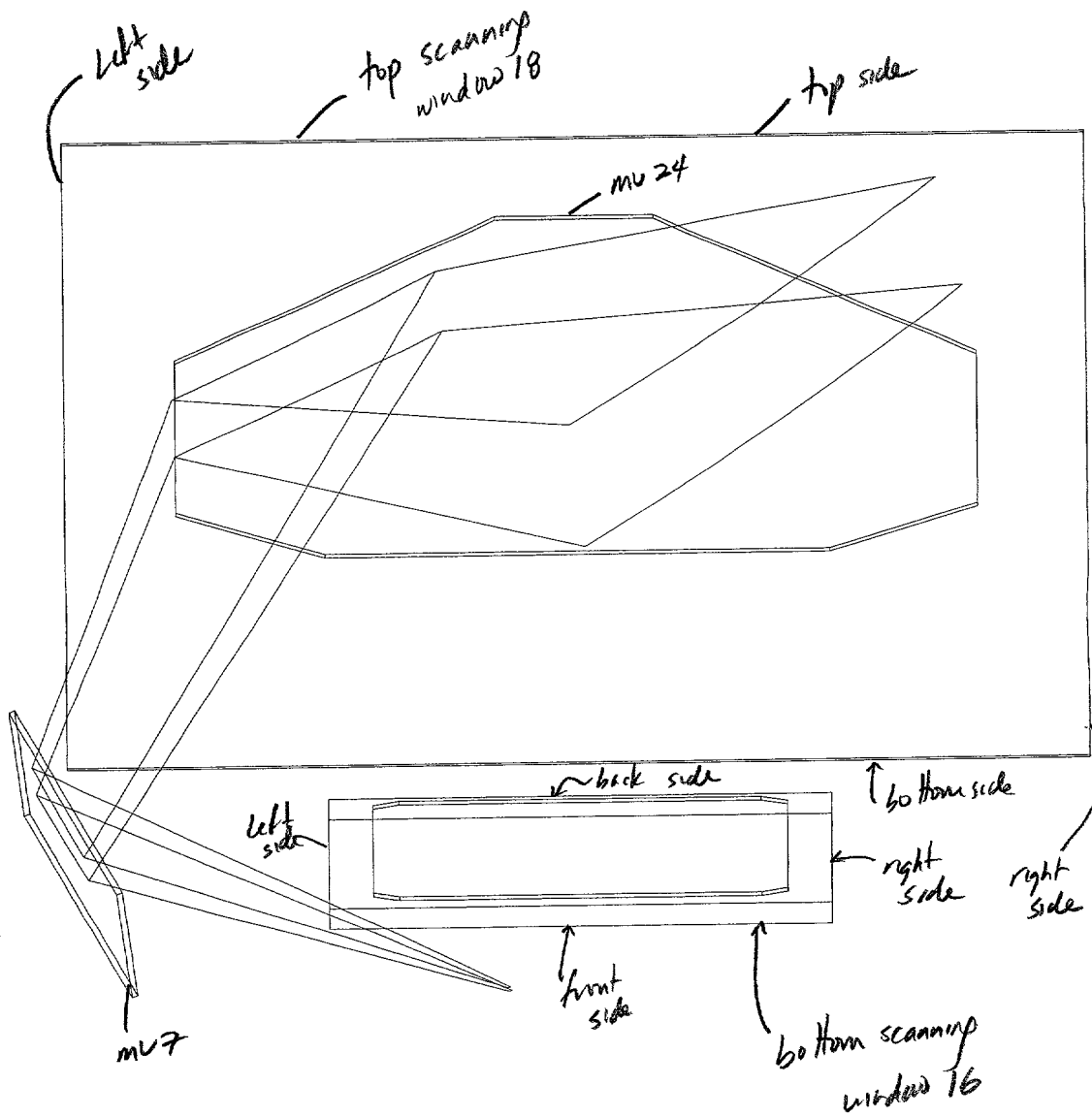
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FIG 5H2



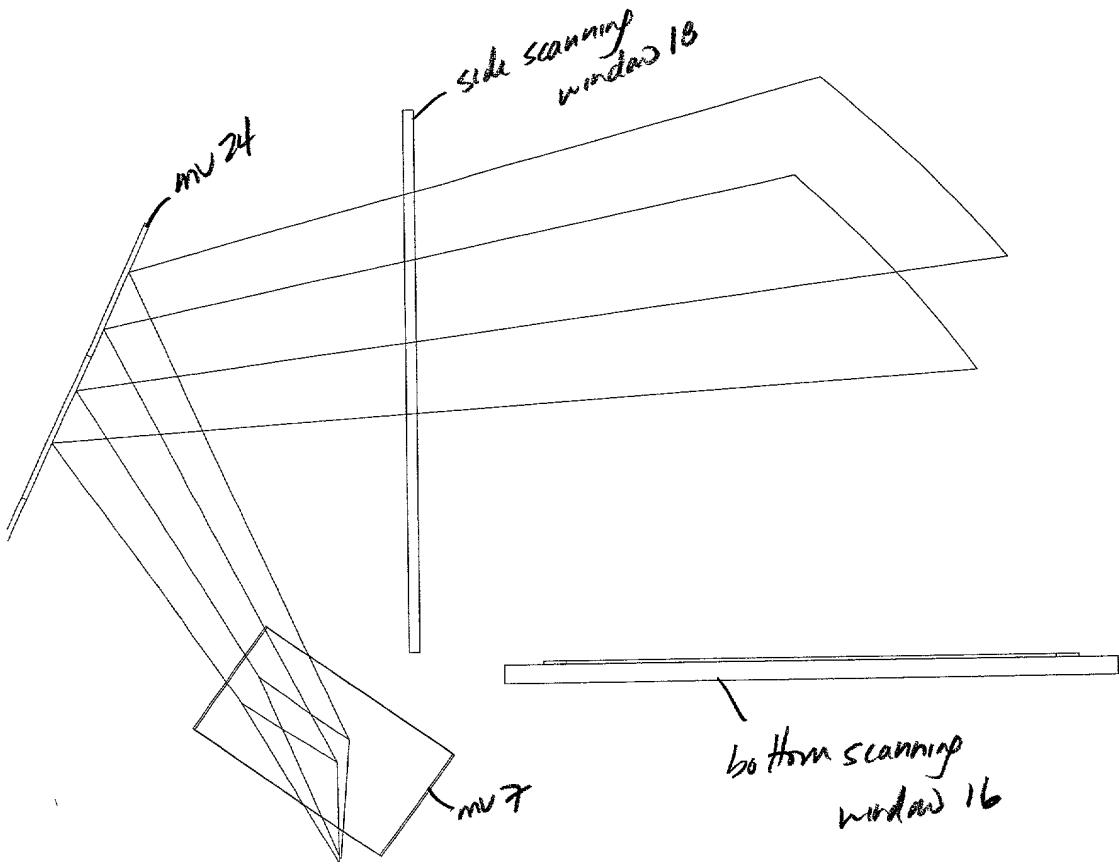
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FIG. 5I1



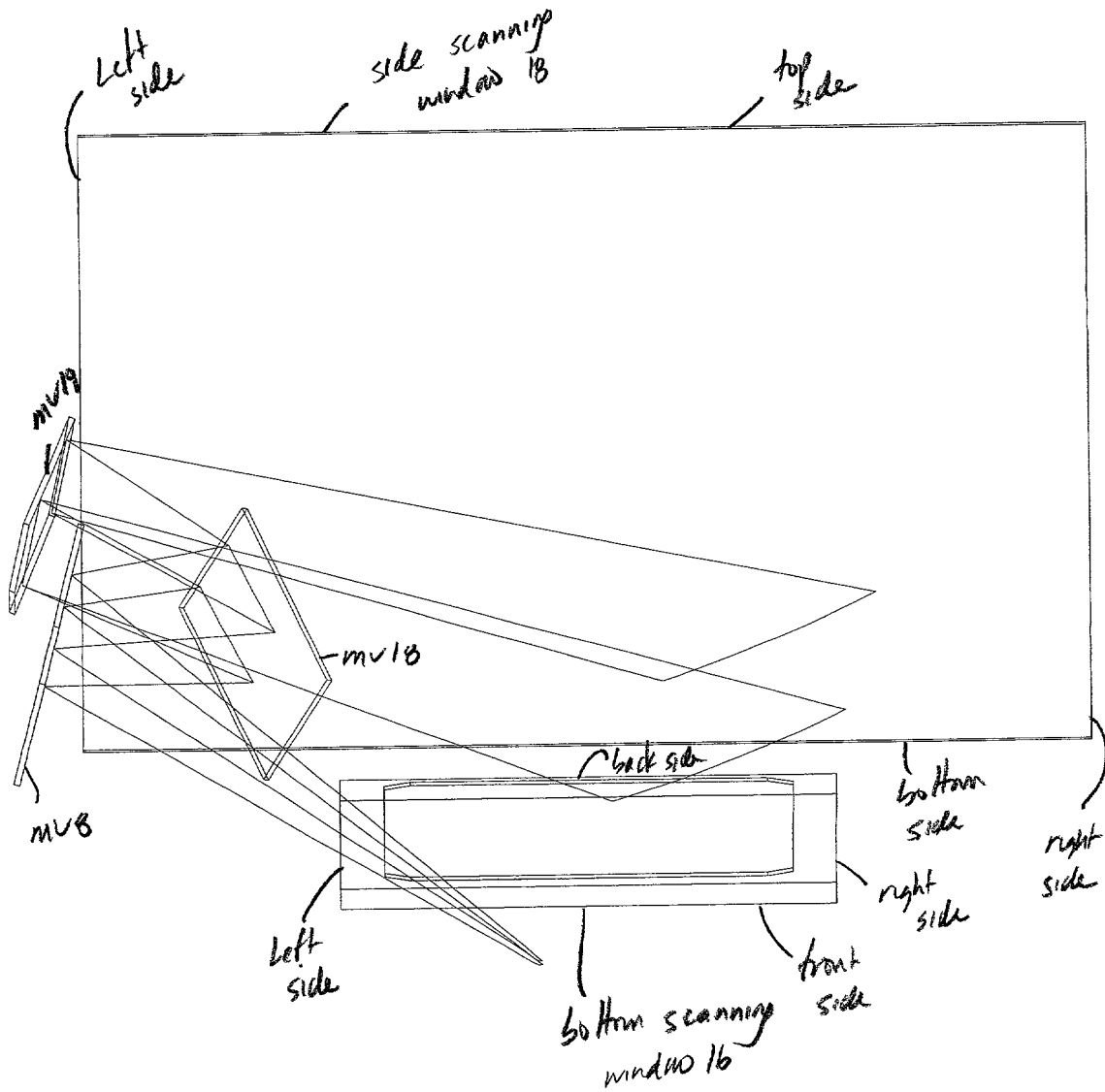
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FIG. 512



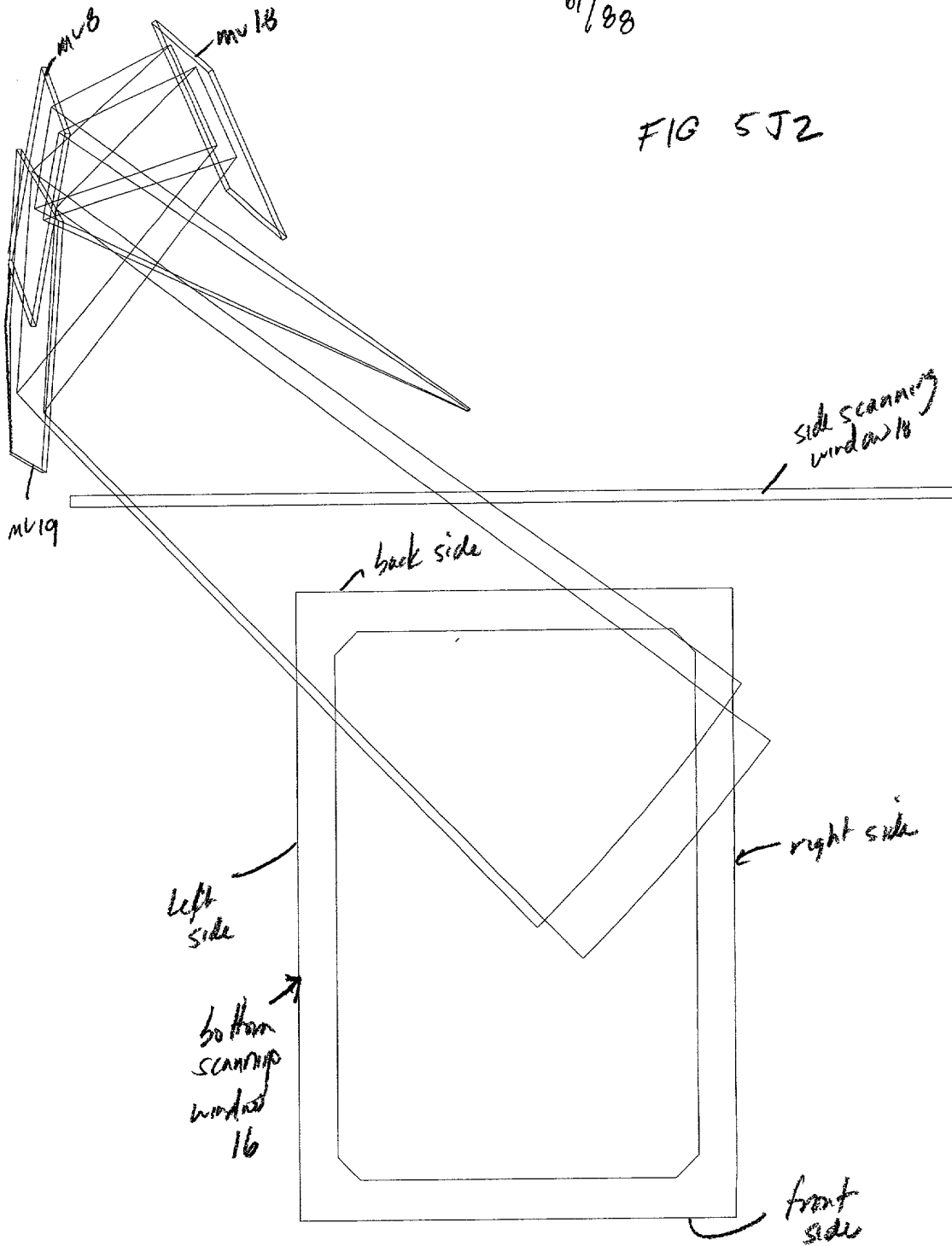
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FIG. 5J1



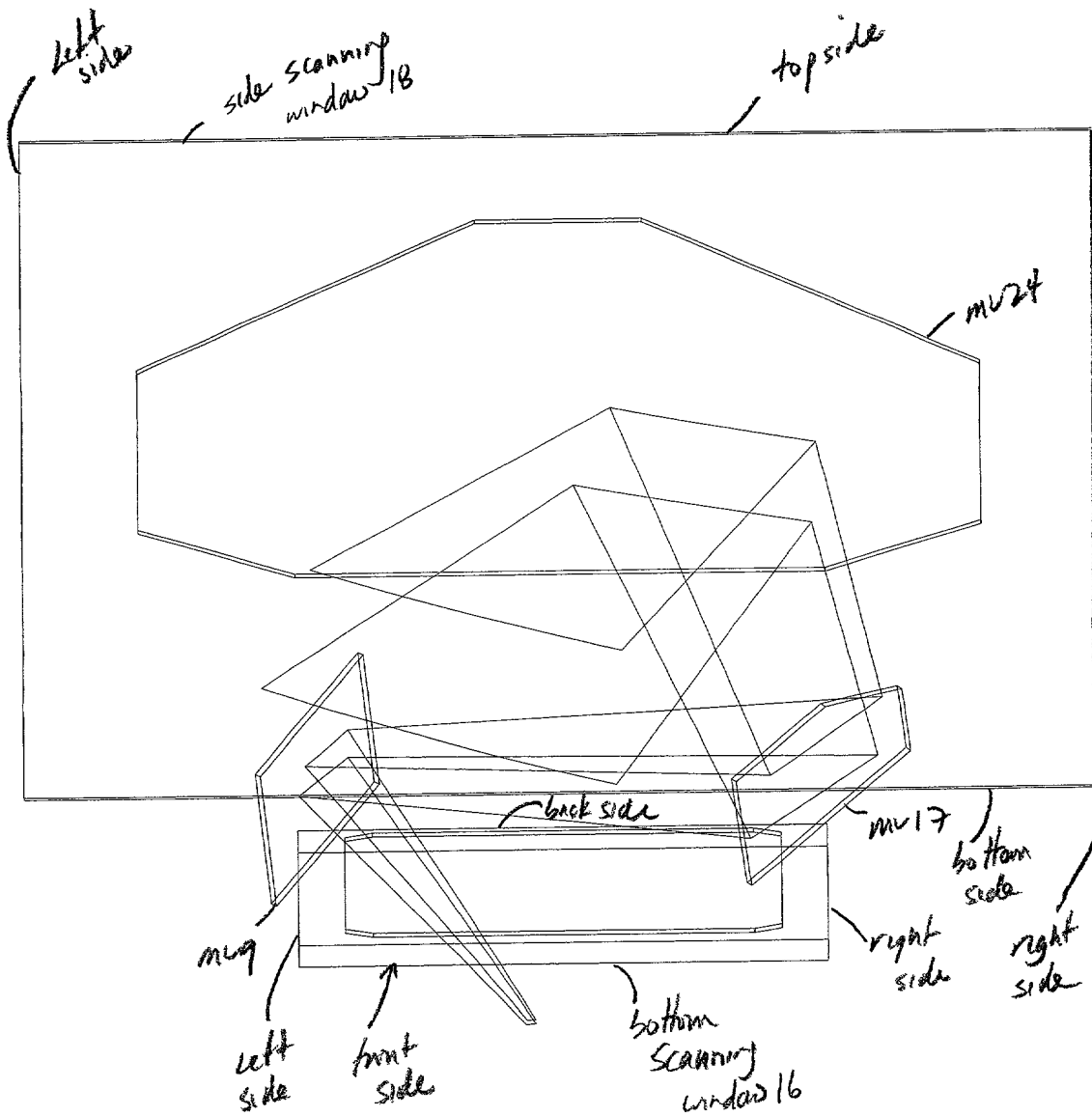
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FIG 5J2



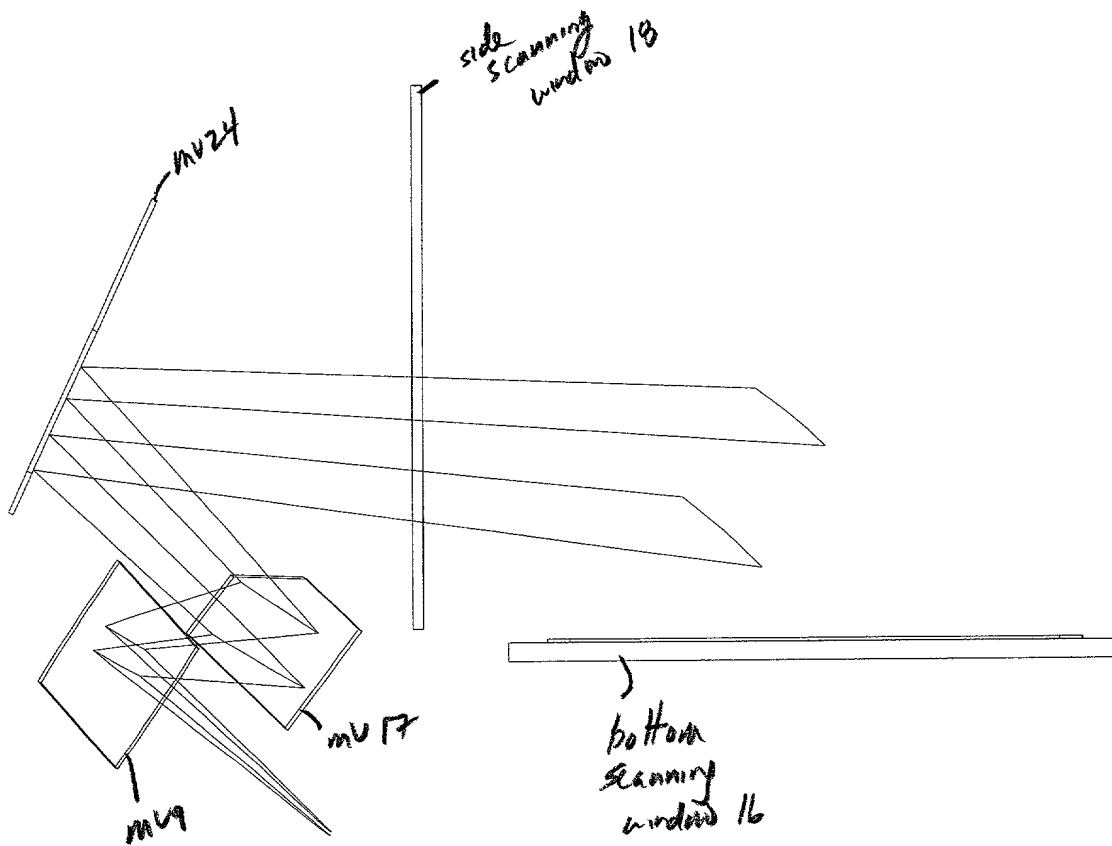
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FIG. 5K1



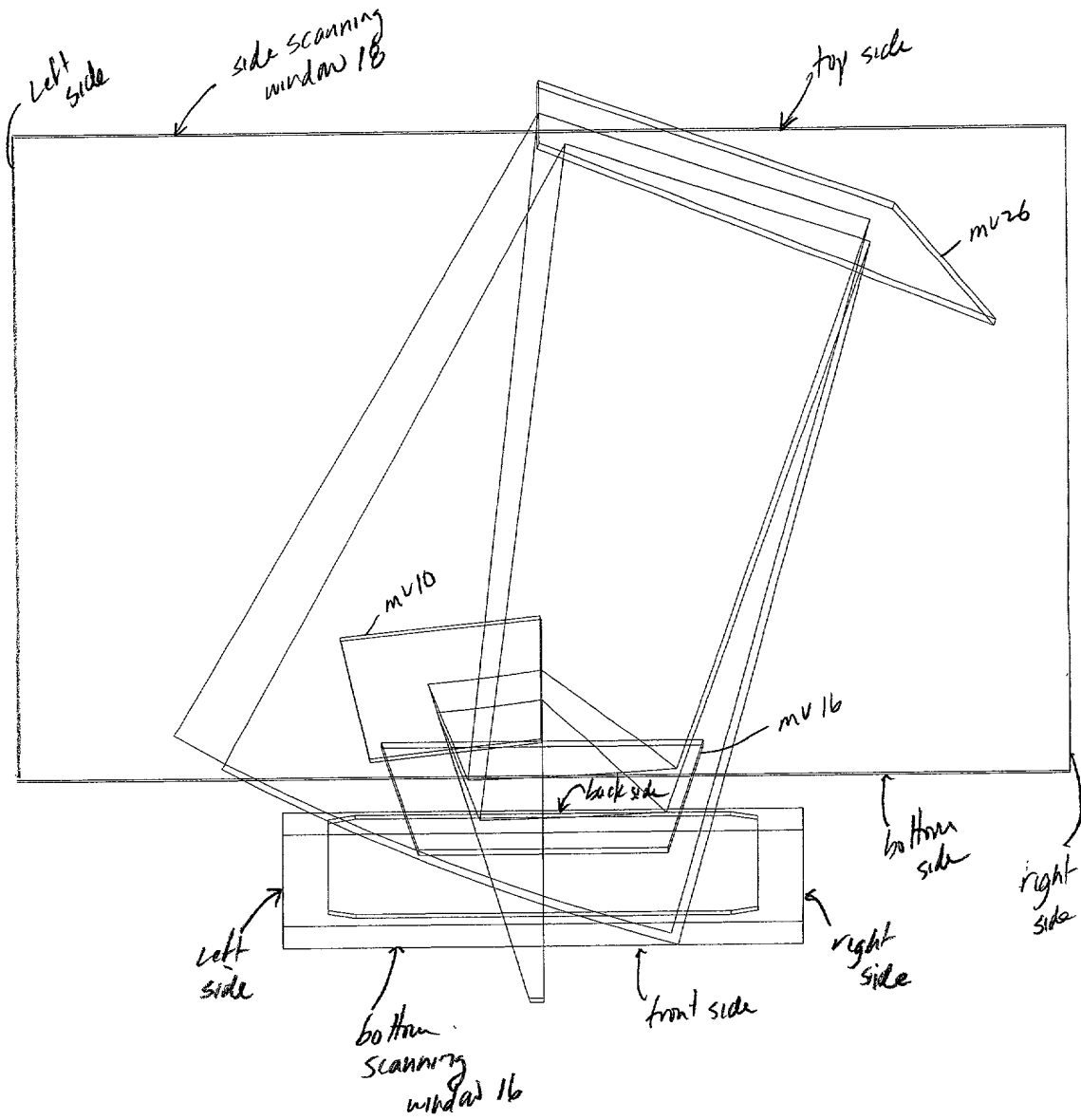
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FIG. 5K2



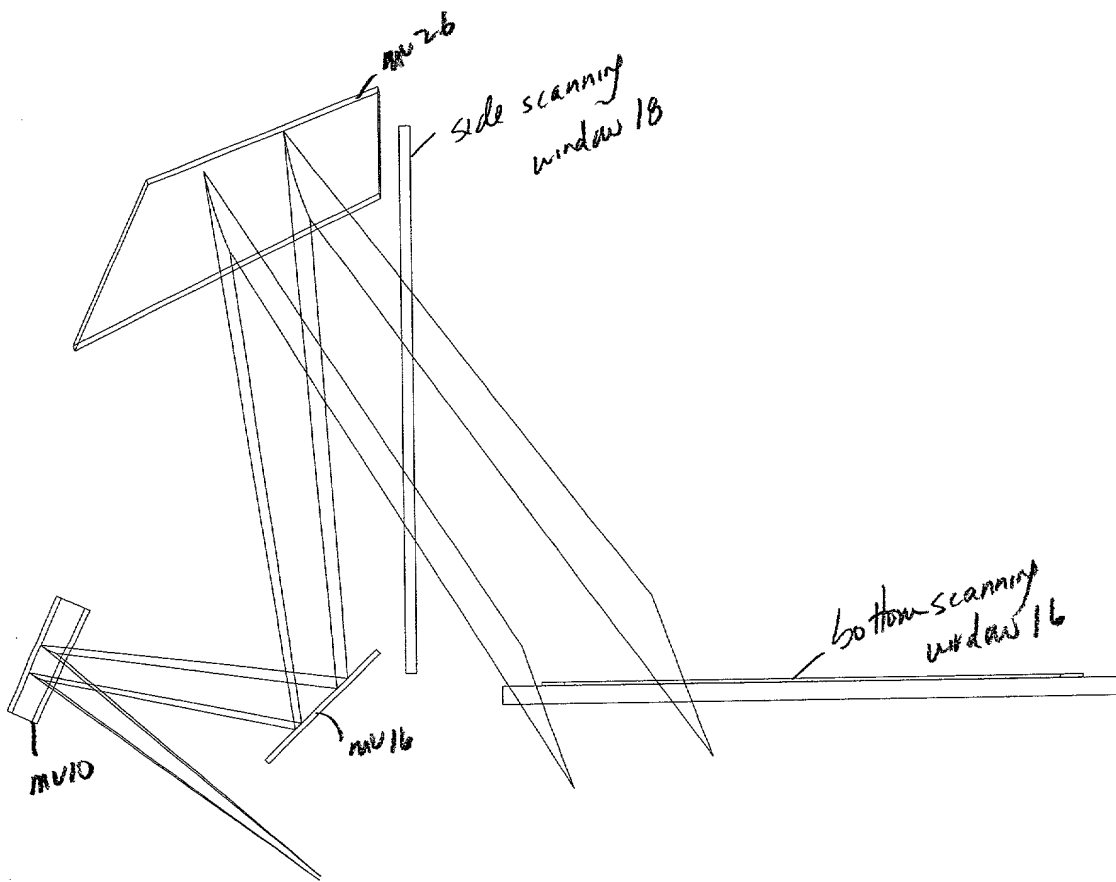
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FIG. 5L1



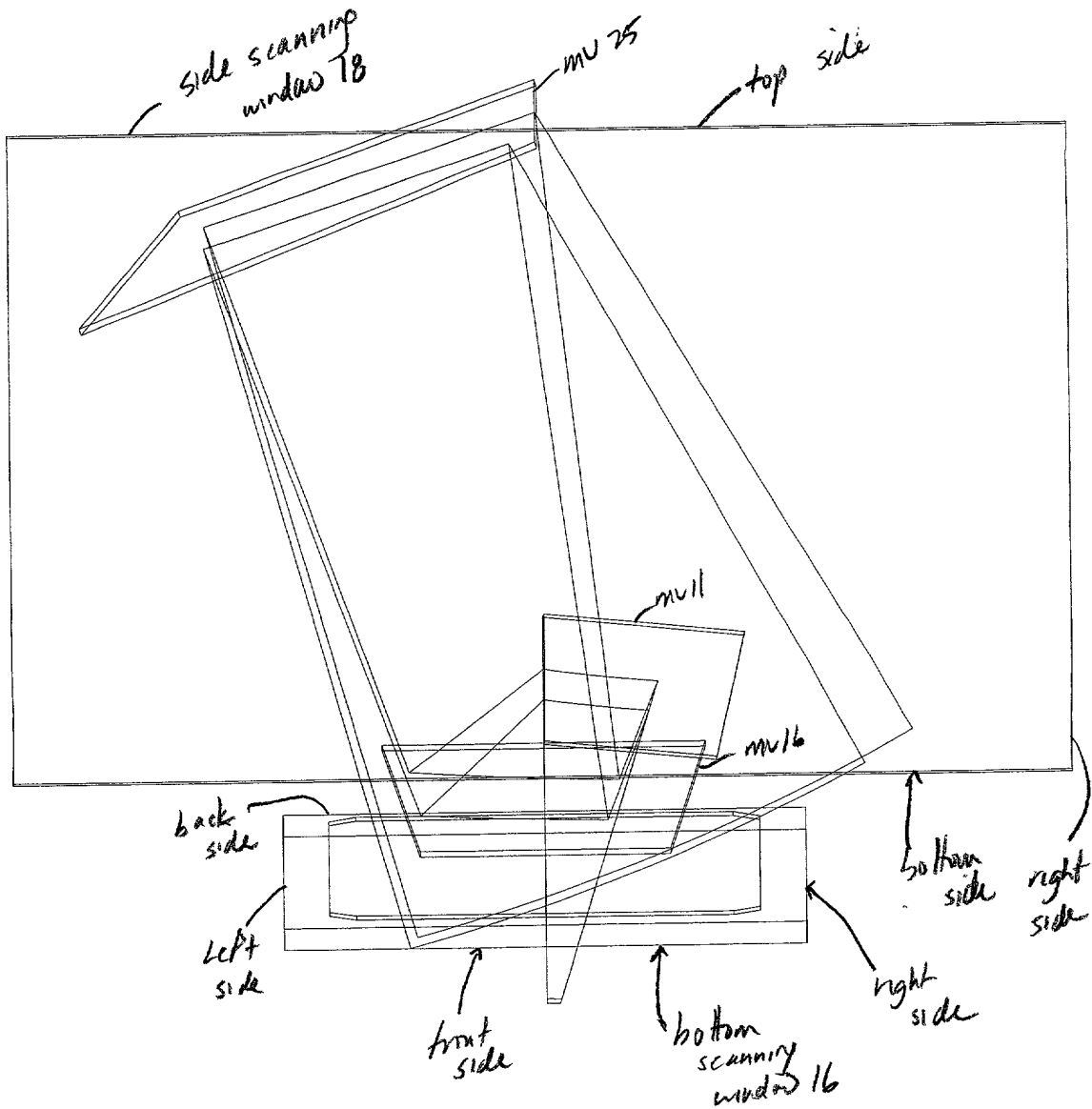
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FIG. 522



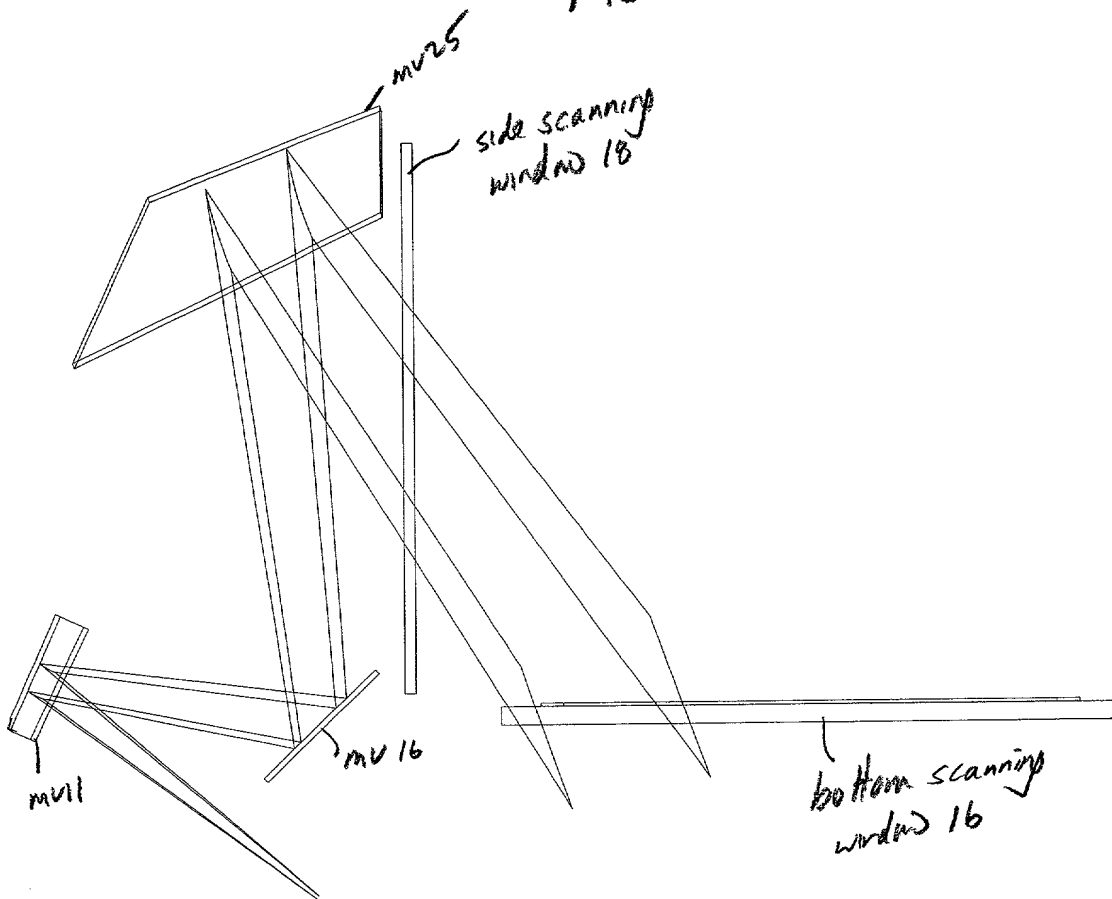
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FIG. 5M1



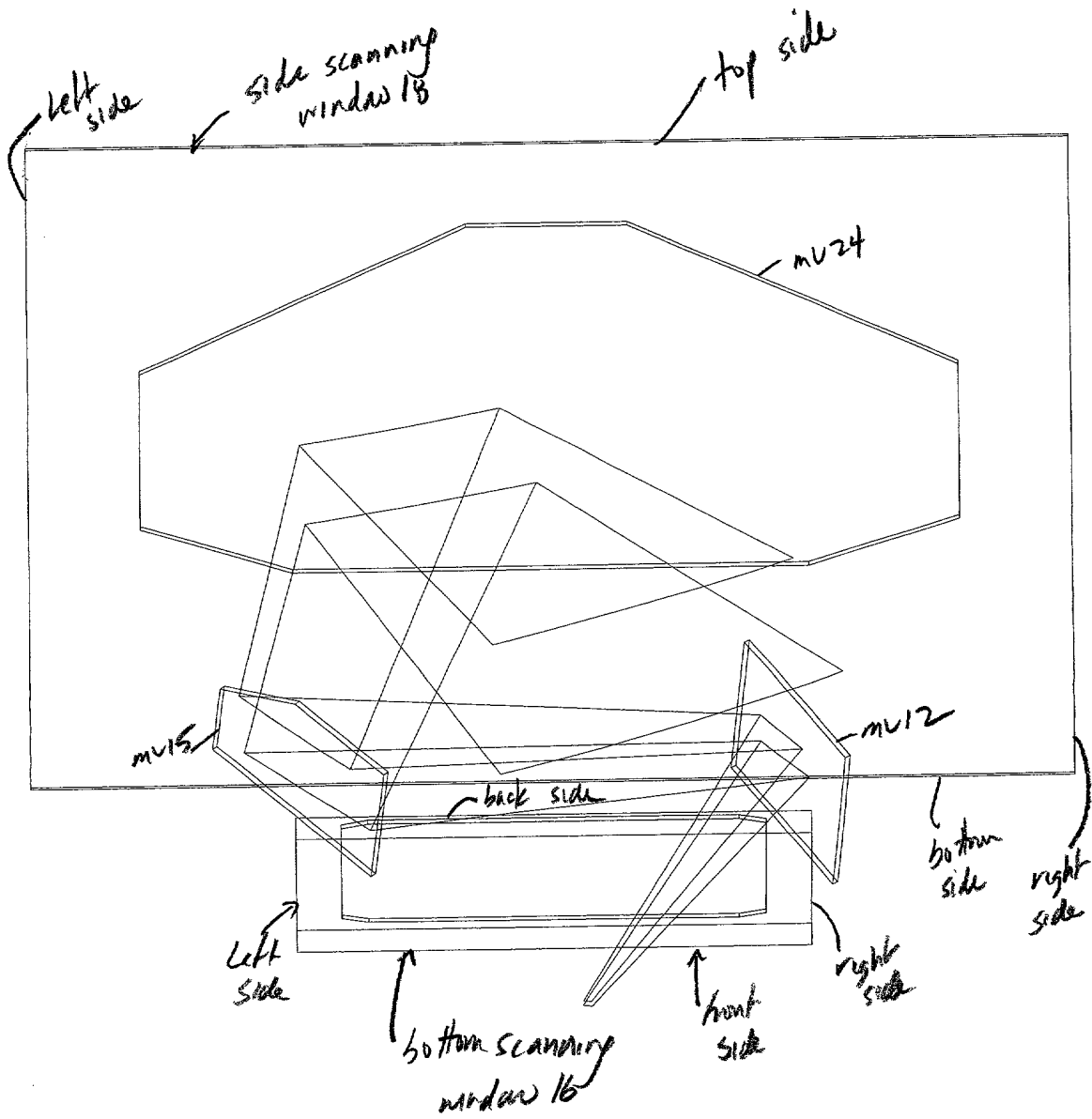
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FIG. 5M2



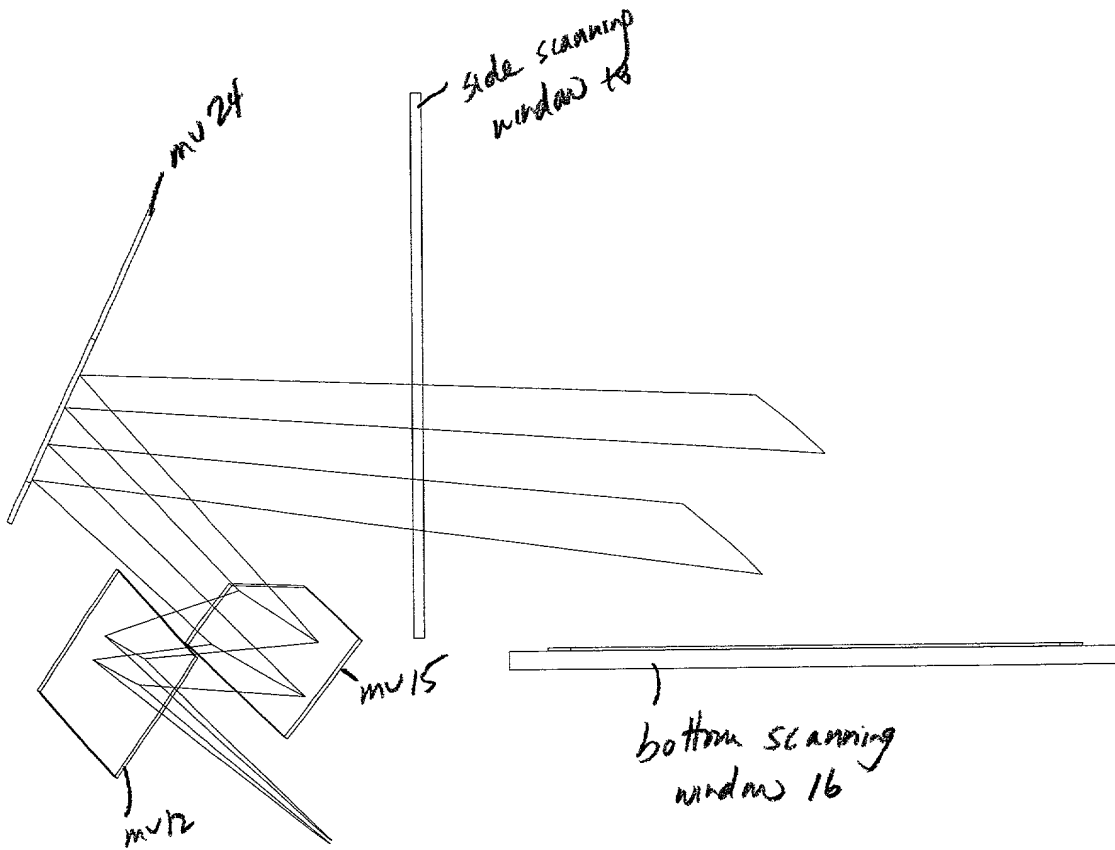
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FIG. 5N1



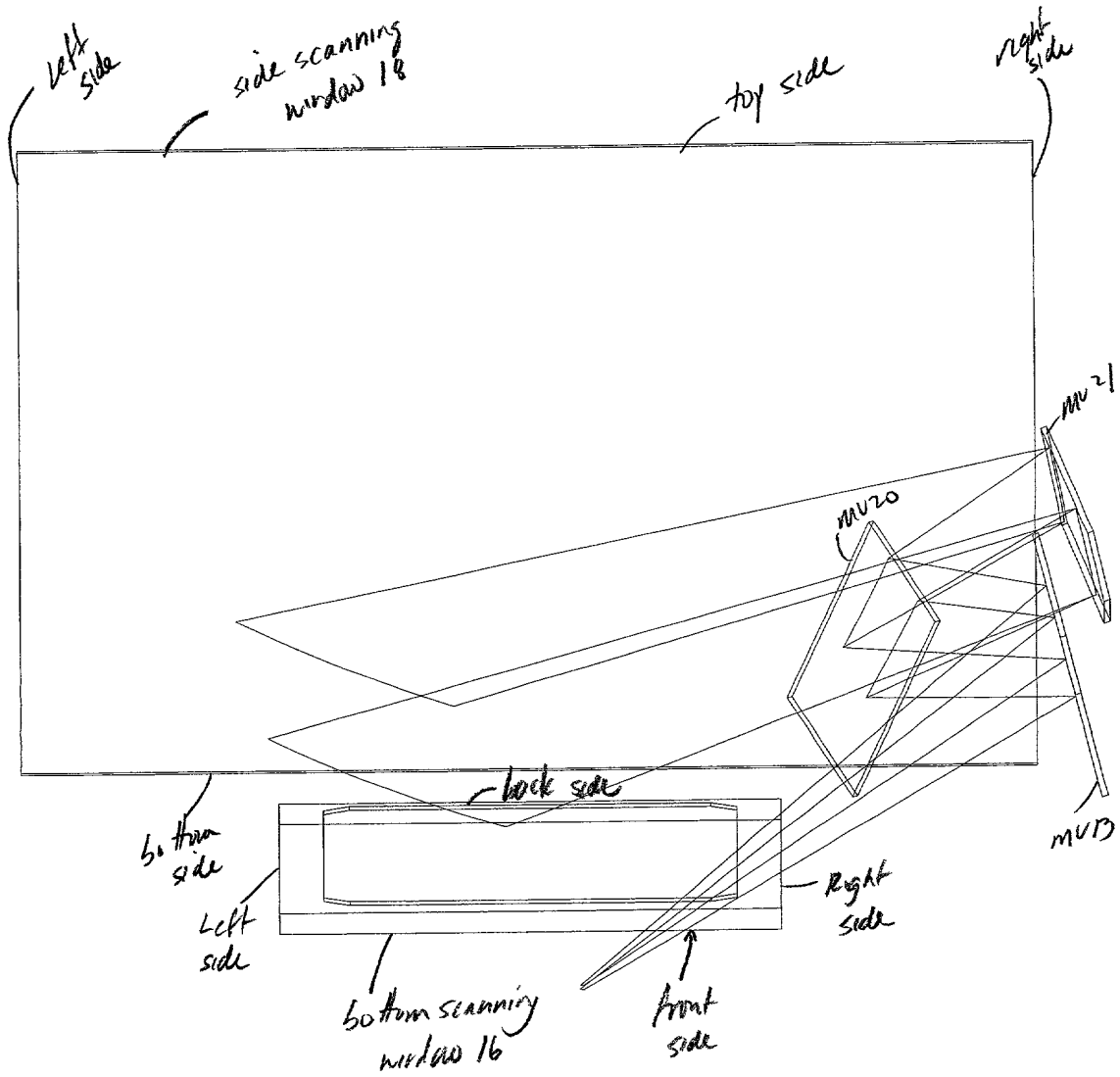
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FIG. 5N2



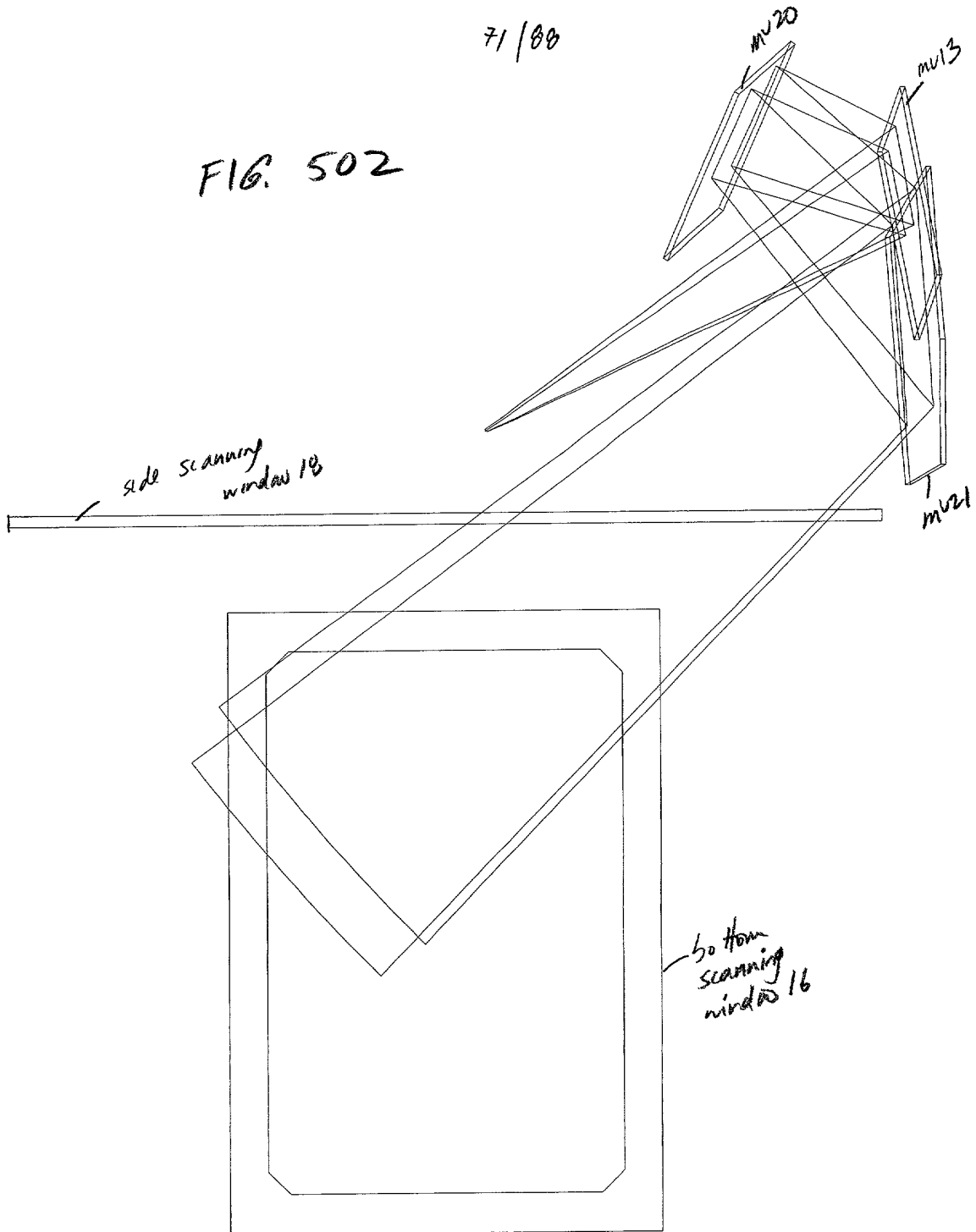
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FIG. 501



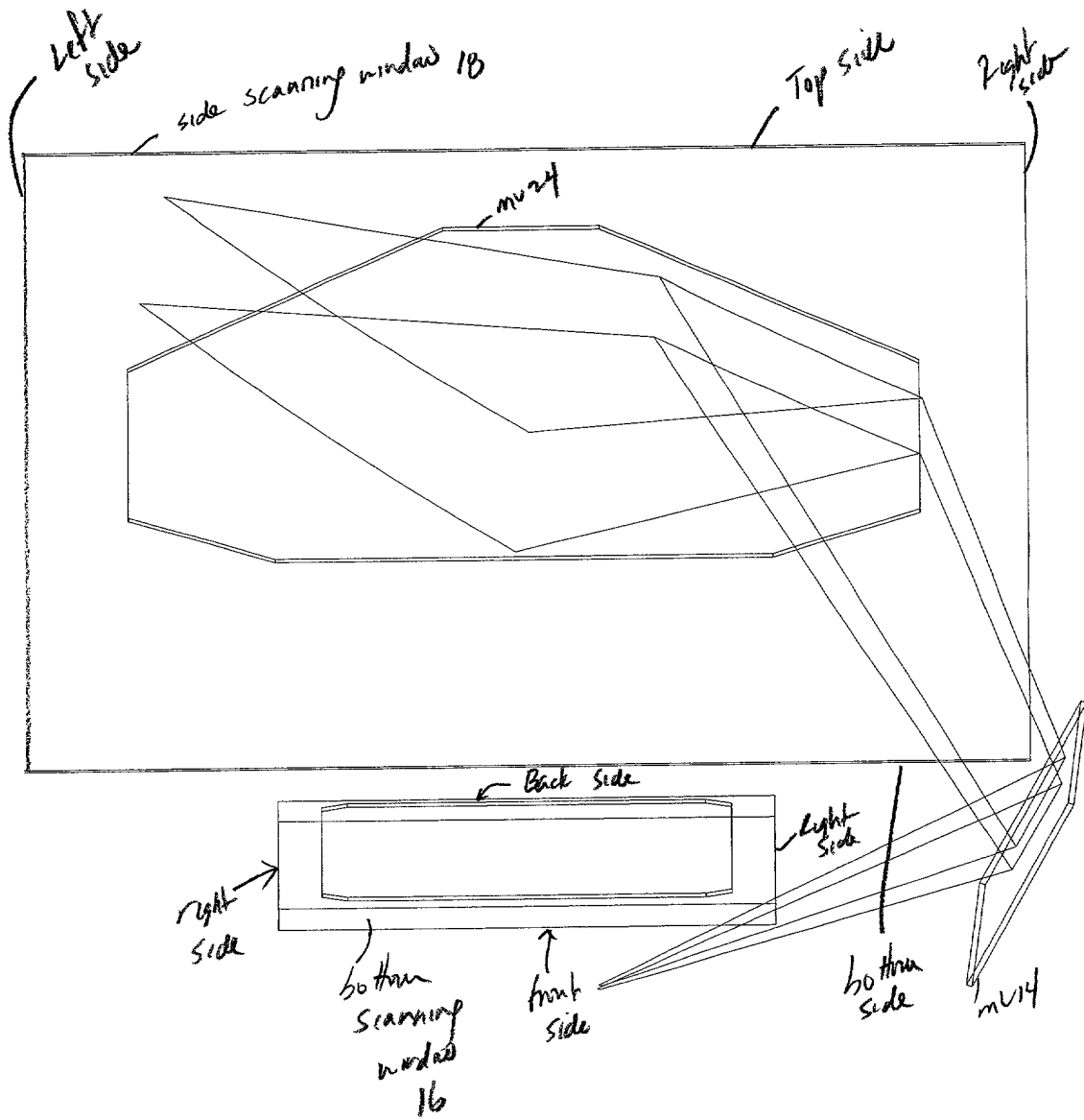
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FIG. 502



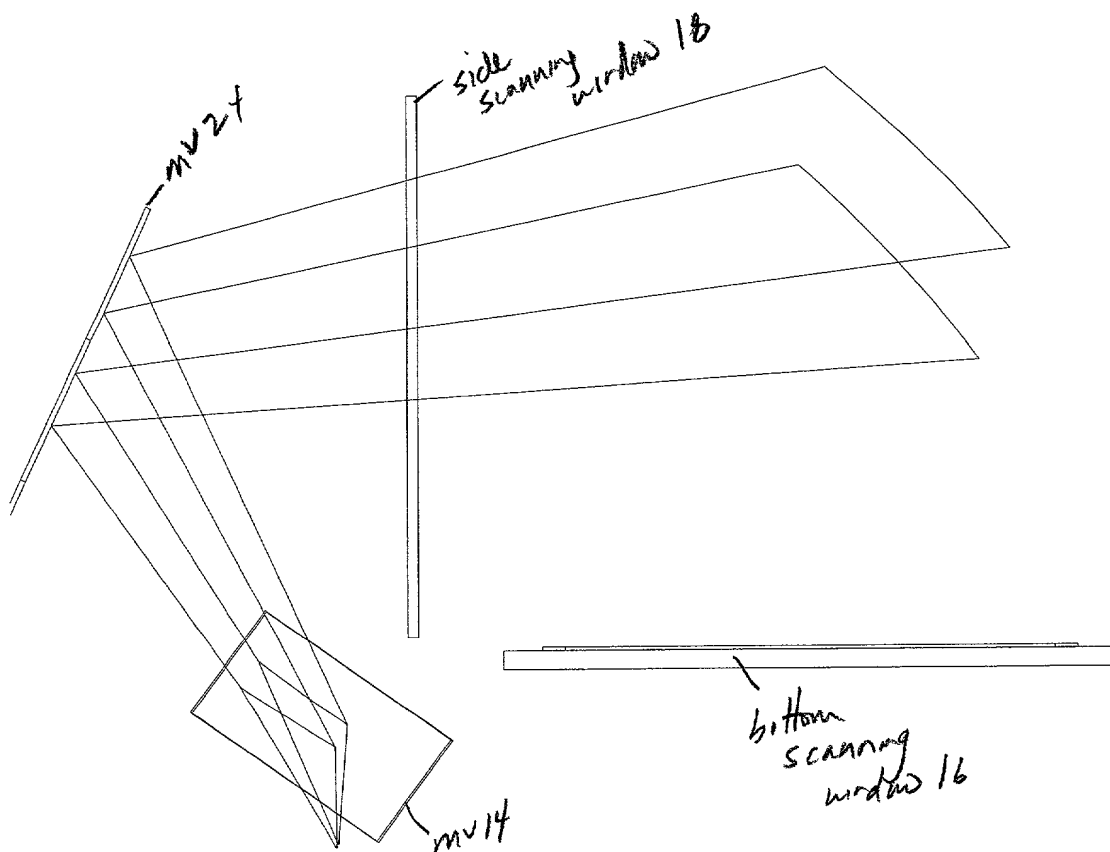
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FIG. 5P1



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FIG. 5P2



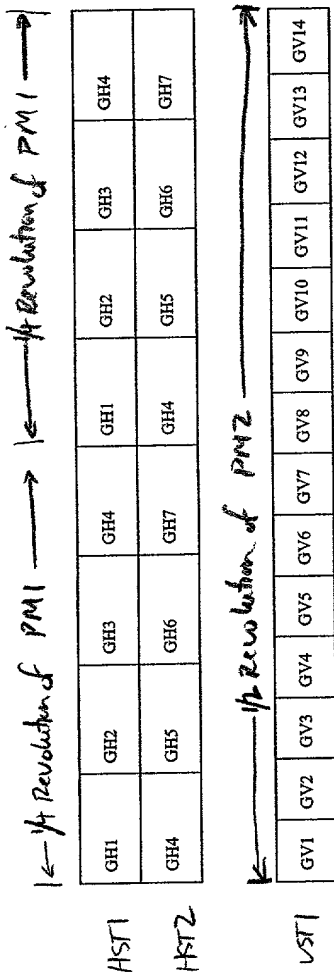


FIG 6

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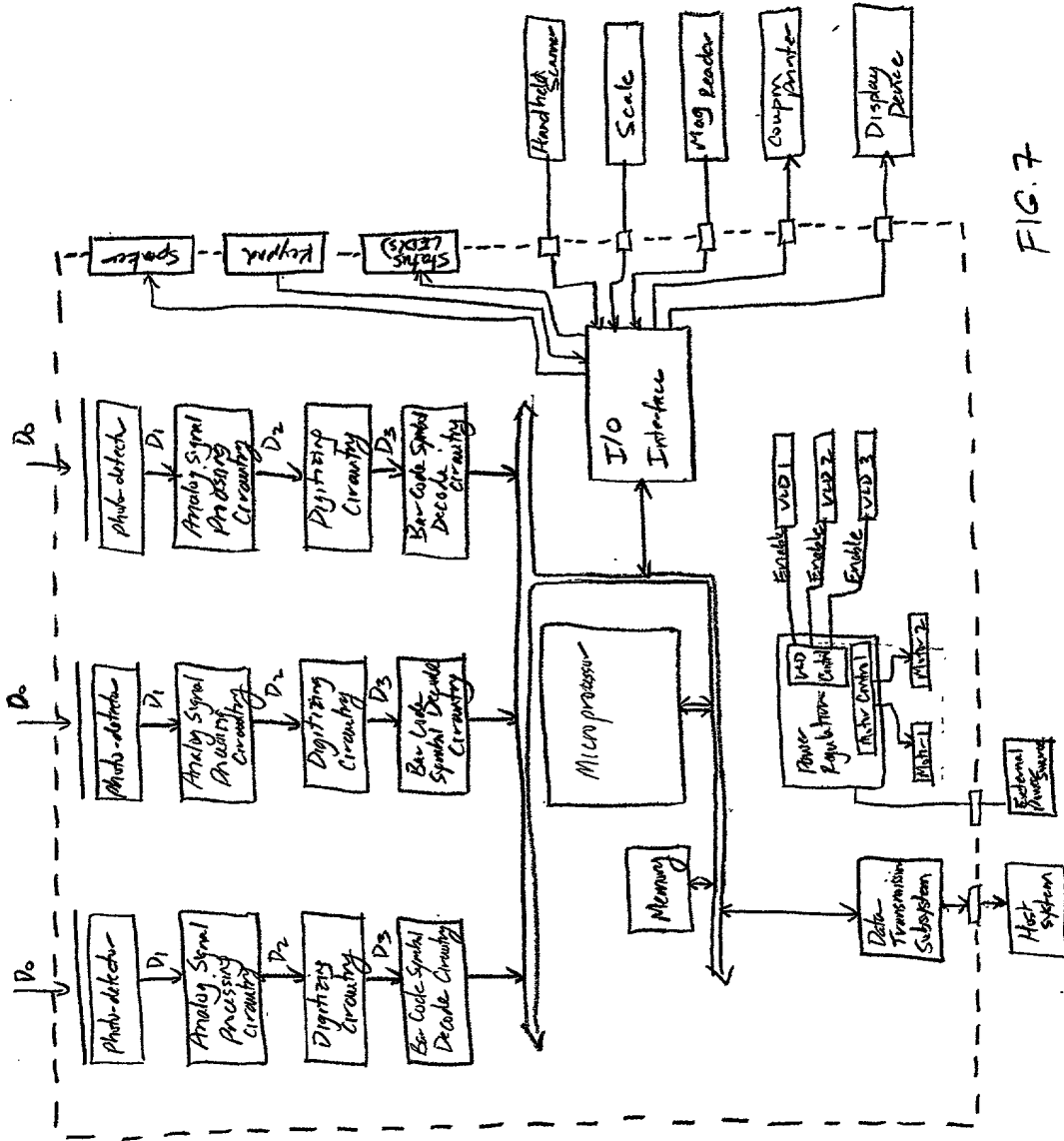


FIG. 7

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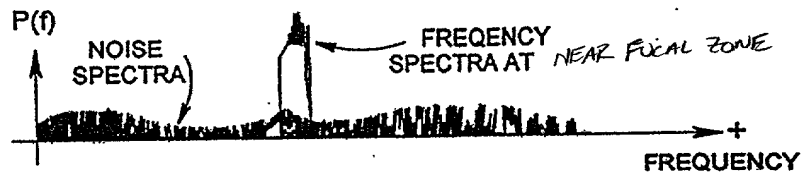


FIG. 8A

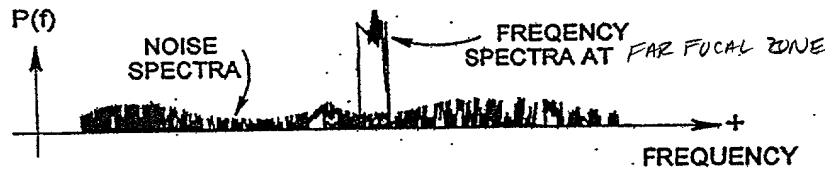


FIG. 8B

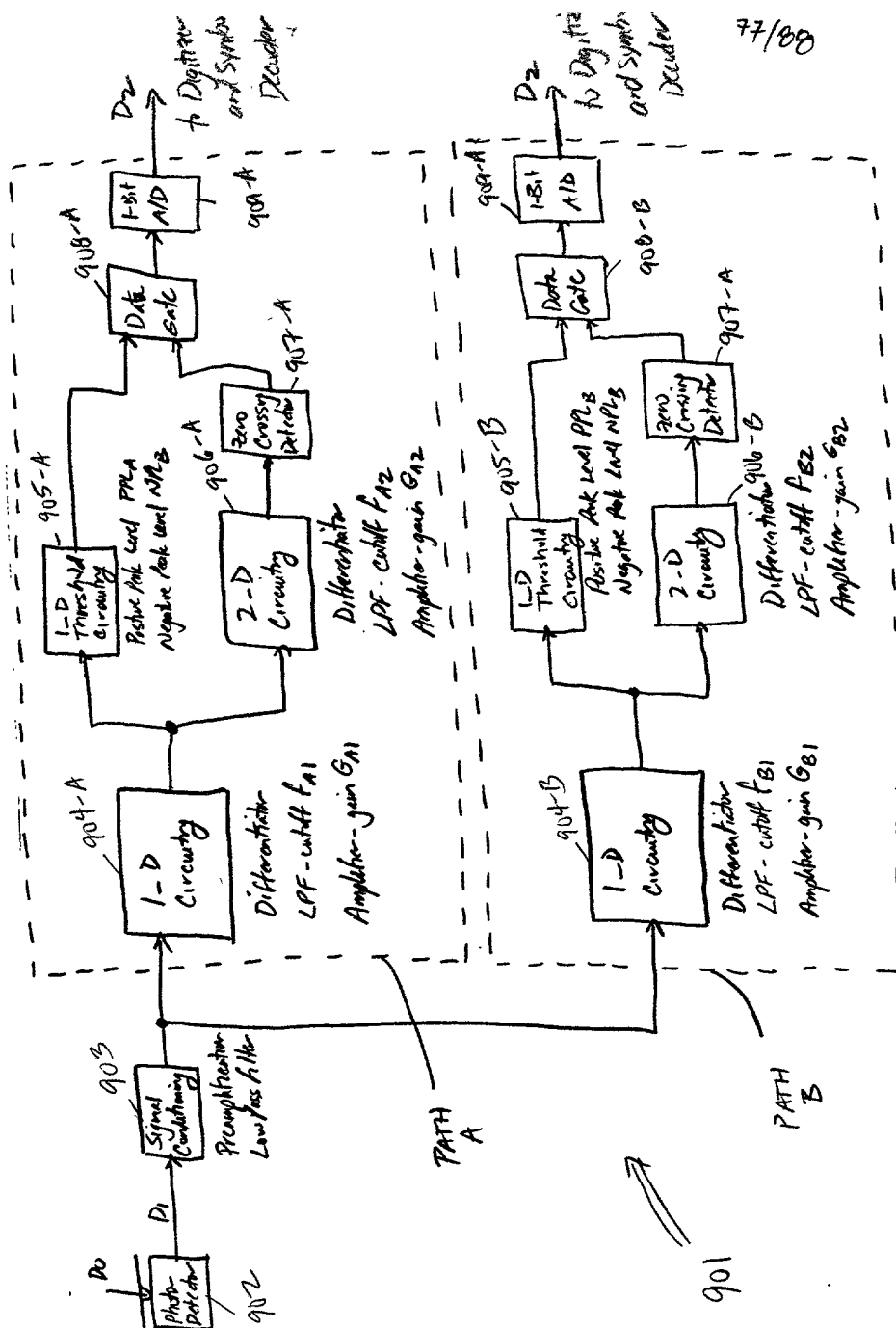
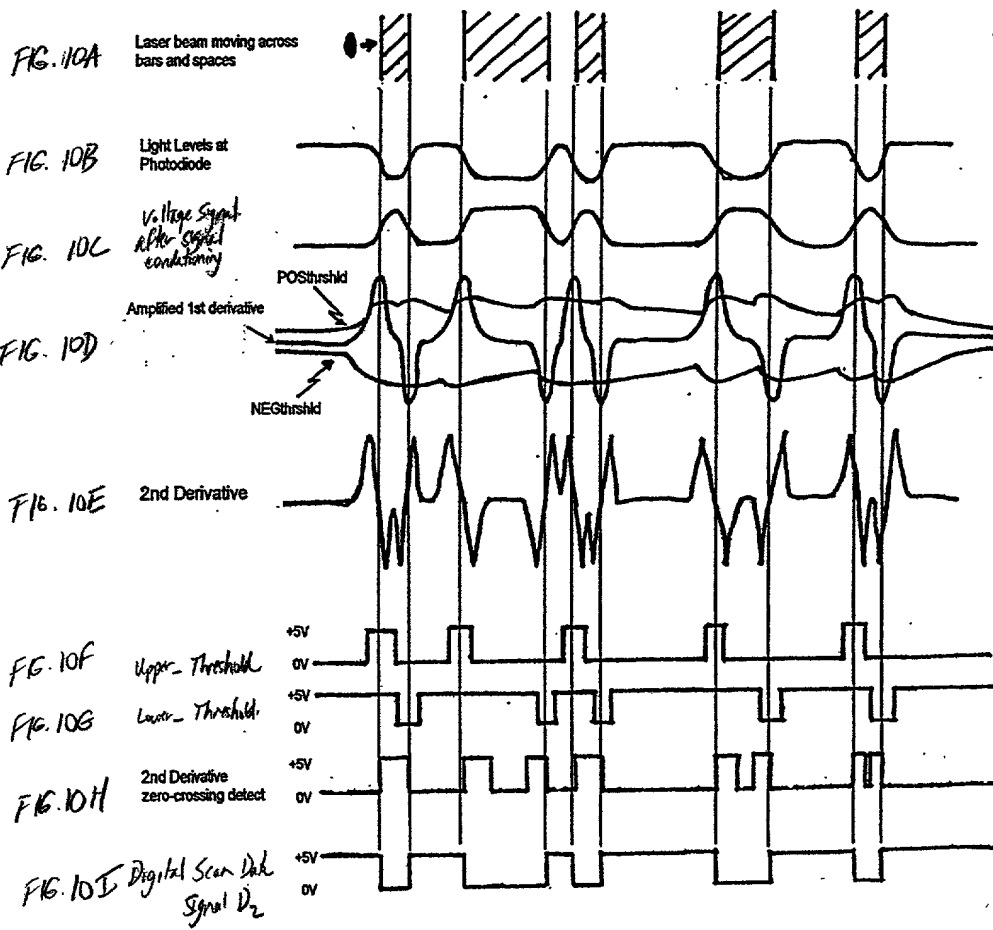


FIG. 9

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NOTES: 1. ALL COMPONENTS ARE TO BE 1% TOLERANCE UNLESS OTHERWISE SPECIFIED. 2. ALL RESISTORS ARE TO BE 1/4W 1% TOLERANCE UNLESS OTHERWISE SPECIFIED. 3. ALL CAPACITORS ARE TO BE 50V UNLESS OTHERWISE SPECIFIED. 4. ALL TRANSISTORS ARE TO BE 100MHz UNLESS OTHERWISE SPECIFIED. 5. ALL DIODES ARE TO BE 1N4148 UNLESS OTHERWISE SPECIFIED. 6. ALL IC'S ARE TO BE 14-pin DIP UNLESS OTHERWISE SPECIFIED. 7. ALL CONNECTIONS ARE TO BE SOLDERED. 8. ALL COMPONENTS ARE TO BE MOUNTED ON A PCB. 9. ALL COMPONENTS ARE TO BE MOUNTED ON A PCB. 10. ALL COMPONENTS ARE TO BE MOUNTED ON A PCB.

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Hot Amplifiers

Differential Amplifier 1107

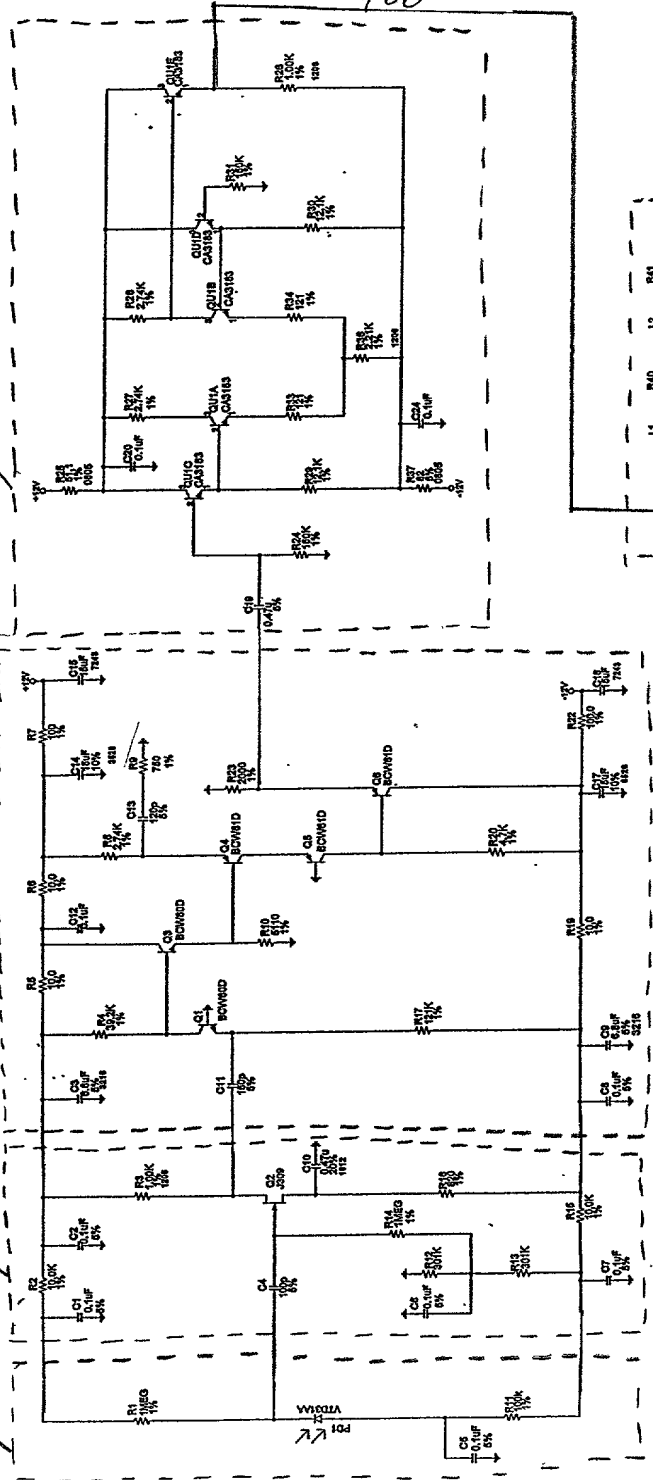
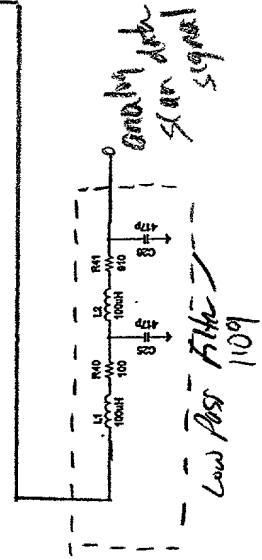


FIG. 11

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Low Pass Filter 1109

and by the star signal

1. The circuit is a differential amplifier with a low-pass filter. It consists of two BCW60D transistors (Q16, Q18) and an OPES4A op-amp (U1). The input signal is applied to the base of Q16. The output is taken from the collector of Q18. The circuit is powered by a +12V supply and a -12V supply.

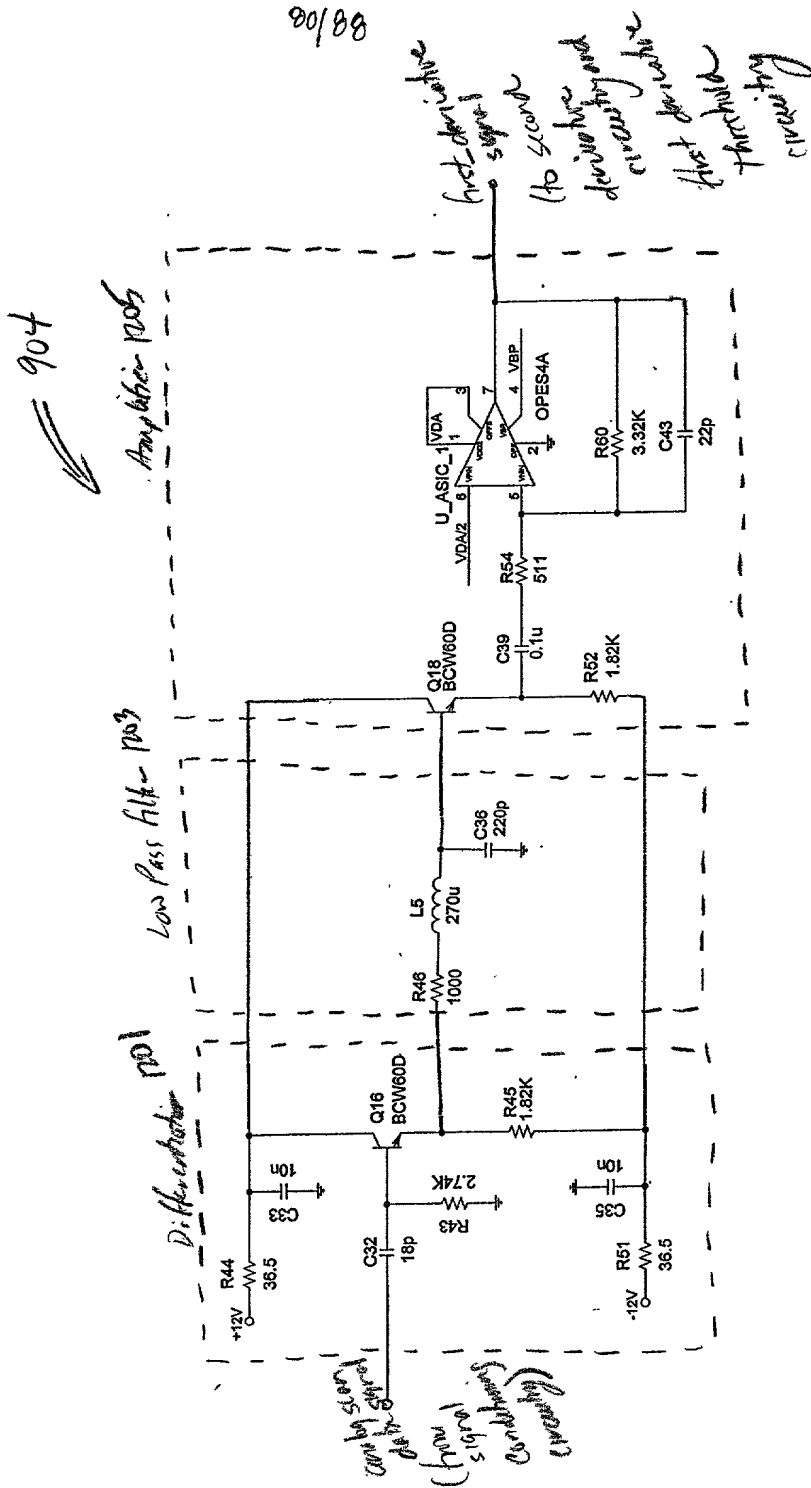


FIG. 12

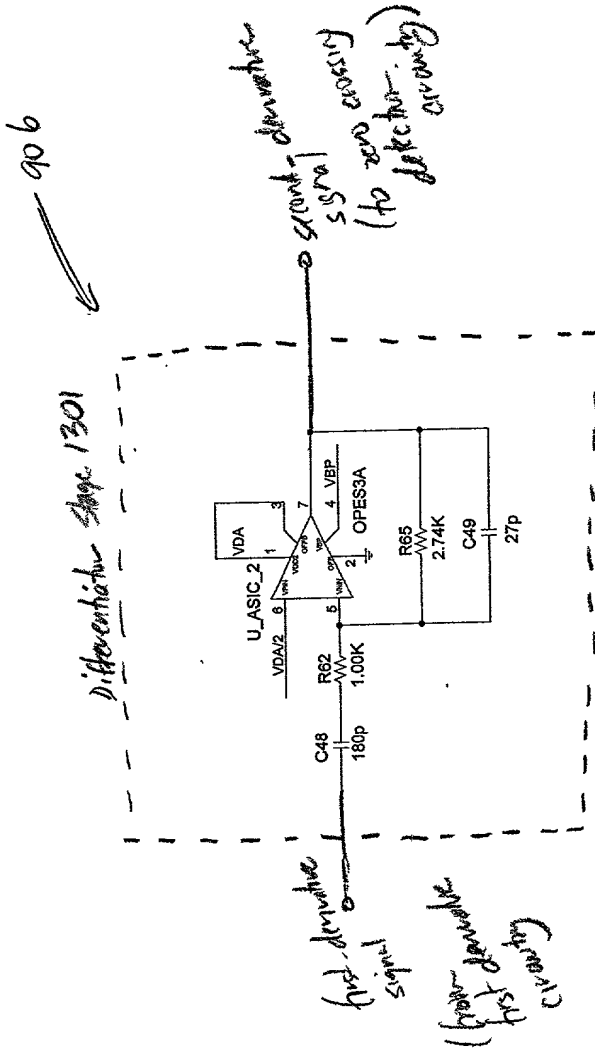
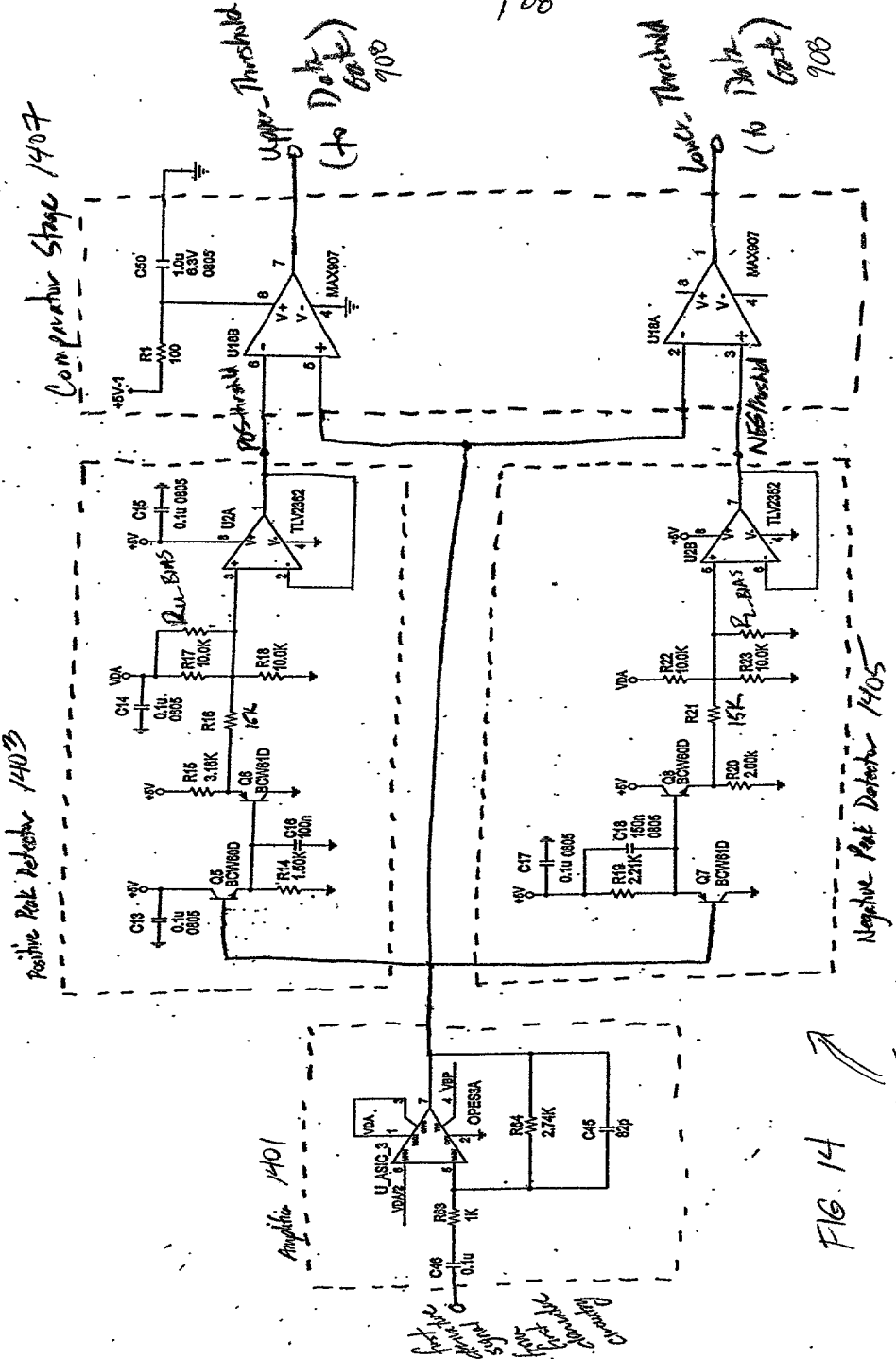


FIG. 13

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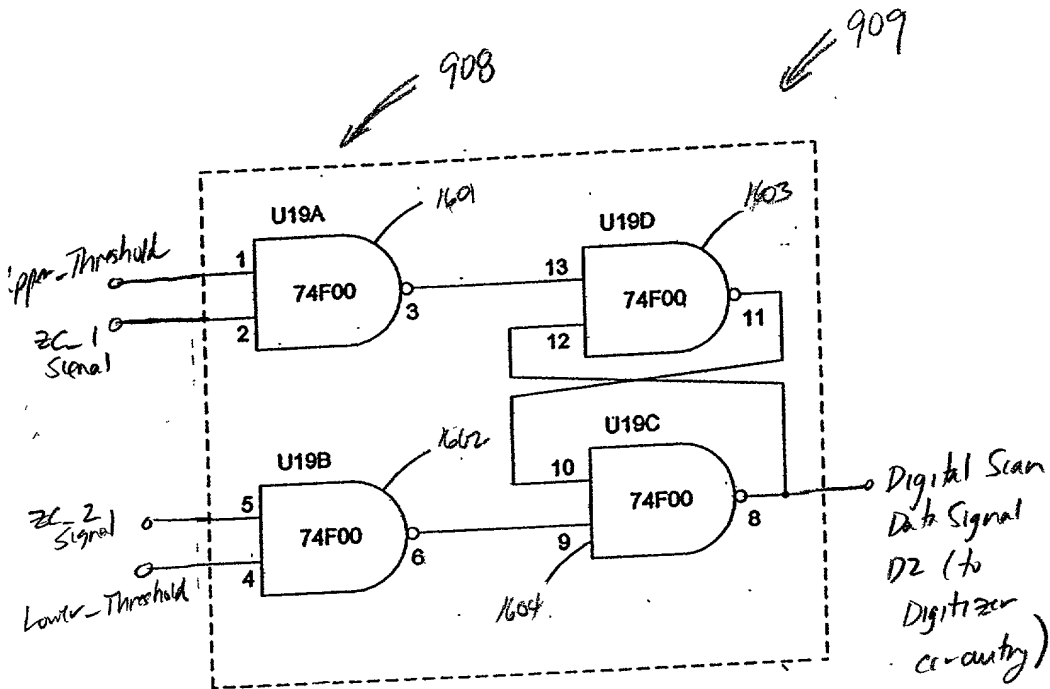


FIG 16

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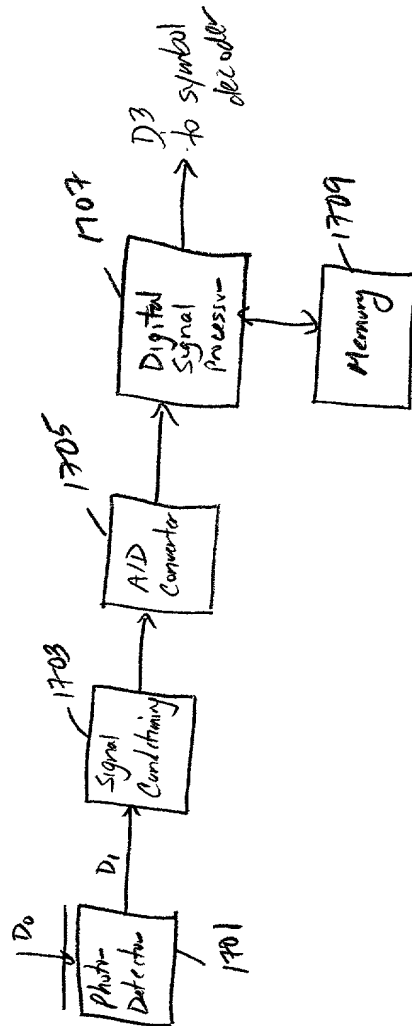


FIG. 17A

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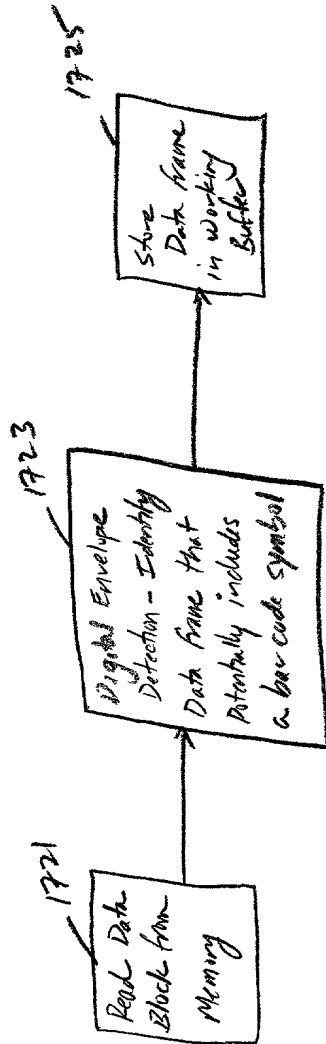


FIG 17B

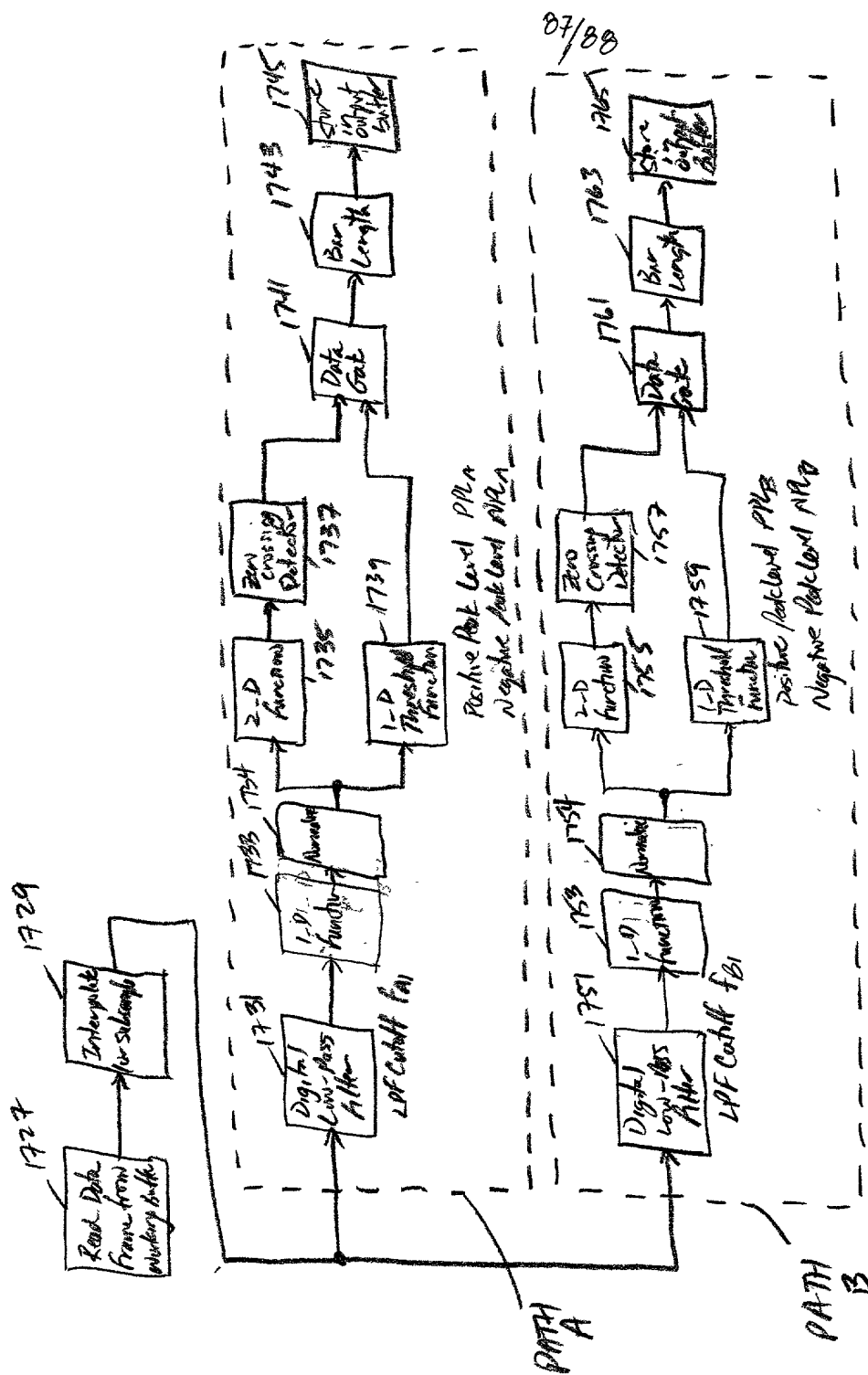


FIG. 7C

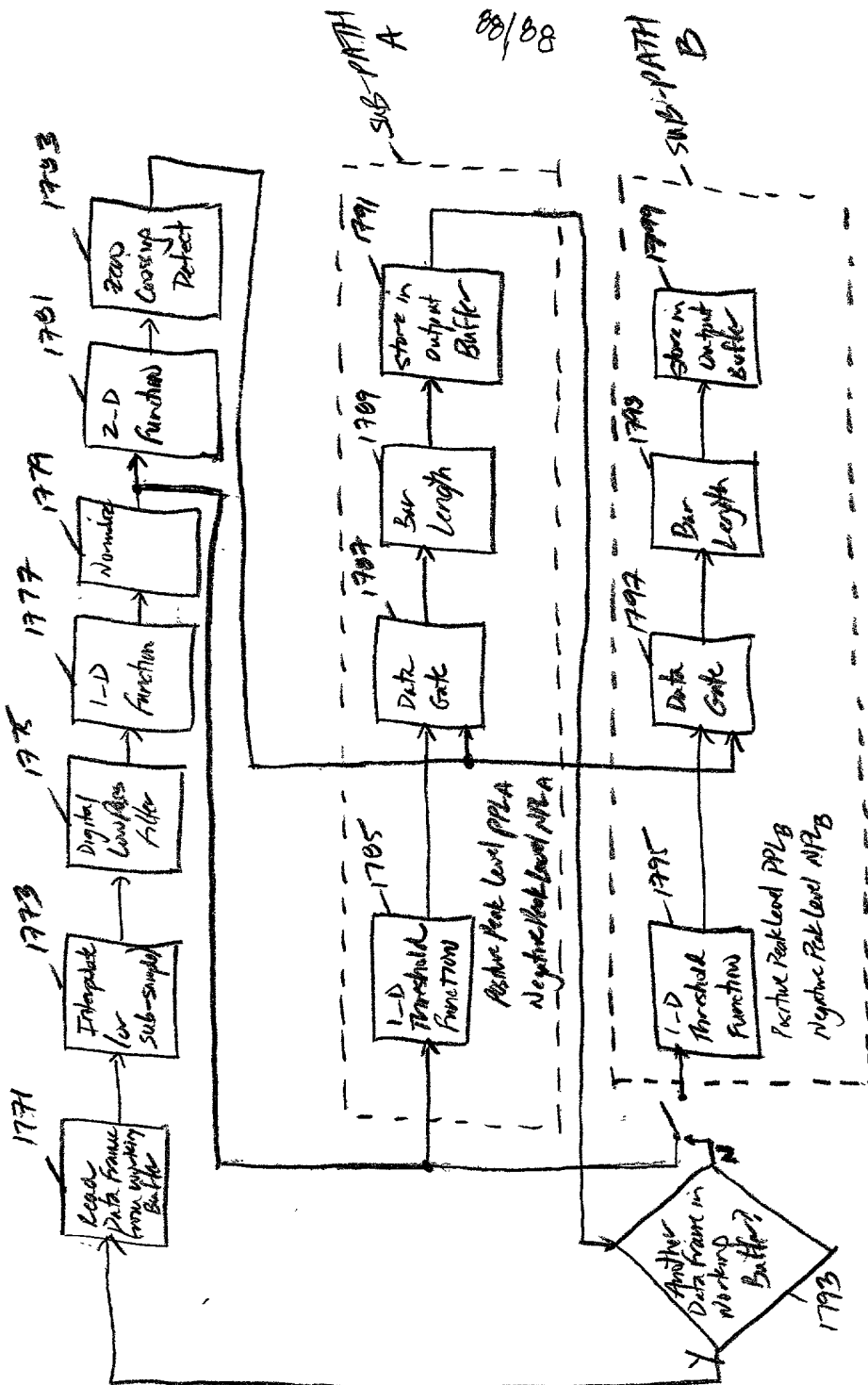


FIG. 17D

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